Fall 10-14-2021

Athletic Training Educators' Perceptions of Interprofessional Education and Educational Strategies Used to Infuse IPE within Athletic Training Programs: A Mixed Methods Approach

Christina Orozco Nevers
christina.nevers@shu.edu

Athletic Training Educators' Perceptions of Interprofessional Education and Educational Strategies Used to Infuse IPE within Athletic Training Programs: A Mixed Methods Approach

By

Christina Grace Orozco Nevers

Doctoral Degree Advisor: Genevieve Pinto Zipp, Ed.D.

Committee Member: Vicci Lombardi, Ed.D.

Committee Member: Anthony Breitbach, Ph.D.

This dissertation is submitted in partial fulfillment of the requirements for the

Doctor of Philosophy Degree

School of Health and Medical Sciences

Department of Interprofessional Health Sciences and Health Administration

Seton Hall University

Nutley, NJ

2021

APPROVAL FOR SUCCESSFUL DEFENSE

SETON HALL UNIVERSITY

School of Health and Medical Sciences

APPROVAL FOR SUCCESSFUL DEFENSE

Christina Grace Orozco Nevers, has successfully defended and made the required modifications to the text of the doctoral dissertation for the Doctor of Philosophy in Health Sciences for the Fall, 2021.

DISSERTATION COMMITTEE

Genevieve Pinto Zipp	***(Signature on file)***	**October 14, 2021**
Dissertation Chair		**Date**
Vicci Lombardi	***(Signature on file)***	**October 14, 2021**
Committee Member		**Date**
Anthony Breitbach	***(Signature on file)***	**October 14, 2021**
Committee Member		**Date**

Acknowledgements

First and foremost, I would like to give praise and thanks to my Lord and Savior, Jesus Christ. God has blessed me with an abundance of opportunities and this doctoral journey has been filled with many, and for that I am truly grateful.

Secondly, I would like to acknowledge all the members of my committee. Dr. Genevieve Pinto Zipp has been nothing short of amazing. She truly models what you would hope a dissertation chair could offer to a student. She is an outstanding mentor and has a gift for speaking to her students in a compassionate and honest way. I appreciate all her time and support in helping me become a scholar. Dr. Vicci Lombardi has afforded me many wonderful opportunities to grow professionally and personally during this journey. Throughout my time in working with her, she has also been one of my biggest supporters. I will always admire her candidness and compassion for her faculty and students. Dr. Breitbach, I will be forever grateful for his time, expertise, enthusiasm, and support he provided to me when I started this journey. Thank you all for working so well together and quickly to ensure that my experience was a positive and productive.

Thank you to all my friends I've made along the way, especially Sister Magdalena Chuwba for all your prayers and blessings. Thank you to all my past professors and mentors who've helped me get this far, especially Jerry Lewis, Dr. Scott Sailor, Tony Ontiveros, Dr. Christopher Ingersoll, Dr. Nicole Cosby, Dr. Laura Harris, Dr. Cahill, Dr. D'Abundo, Dr. DeLuca, and Dr. Franco. Thank you to my Mommy and Dad - Beatriz and Gerardo - who've always supported me and my love of academia, for all their sacrifices to help me get to this point and achieve my PhD. Thank you to my little sister Lourdes, for always being so proud of me. Thank you to my in-laws, Mom and Dad - Ramon and Zoraida - for loving me as their own and

helping to take care of my baby so I can have time to work on my PhD. Last, but not least! To my wonderful husband Cristyan, thank you for truly showing unconditional love and support throughout this process.

Dedication

This dissertation is dedicated to my beautiful little boy Carlos Xavier. I hope the story of my journey shows him that anything is possible with God, your faith, and lots of prayer! Carlos, with these 3 things you can achieve your dreams as well!

TABLE OF CONTENTS

List of Figures

List of Tables

Abstract

BACKGROUND: As athletic trainers (ATs) educators and professionals we recognize the importance of preparing our students to practice as part of an interprofessional team and acknowledge that this training must begin while they are in the academy. Although there is lots of information about interprofessional education (IPE) in various other healthcare professions (HCPs), there is limited information about how AT educators are infusing IPE into the curriculum. To maximize the development of interprofessional teaming practices in healthcare we must first understand the most effective ways to infuse IPE in AT professional programs given how compact the curriculum is. Educators must ensure that they are effectively and meaningfully utilizing the limited time students are in the academy and those learning experiences are linked to curricular goals. The purpose of this study was to explore AT educators' perceptions of collaborative practice, what is impacting AT educators knowledge in IPE, and how are they using that knowledge to infuse IPE within the curriculum.

METHODS: A non-experimental, cross-sectional, exploratory, online survey, 3-phased approach to collected data during the 2020 – 2021 academic year. Phase 1 collected quantitative (QN) data using demographic questions, the modified Perceptions of Interprofessional Collaboration Model Questionnaire (PINCOM-Q) (Strype et al., 2014), and the Interprofessional Education Learning Activity Inventory in Athletic Training. Phase 2 collected qualitative (QL) data using the responses to open-ended survey questions and the responses to the closed-ended QN "yes or no" questions. The open-ended responses helped to further support, explain, and provide depth to the QN "yes or no" responses. QL responses were decoded, then encoded using an inductive approach translating participant responses into codes, categories, and themes.

RESULTS: AT educators appear to have an overall agreeable and positive perception of

interprofessional collaboration with a mean score of 2.5549. Common IPE strategies identified by AT educators were didactic (10.35%), case studies (9.81%), small group format, and clinical experiences (8.99%), large group format (8.72%), and simulation (8.17%). Most AT educators reported using theoretical frameworks when infusing IPE, although less than half were not aware or did not know if theory supported their IPE programming. From the QL survey, responses were coded using an inductive process. Intercoder agreement served as an external check for descriptive codes and themes. Themes that emerged further supported and provided insight to the QN data including perceived barriers, pressures, facilitators, benefits, evaluation, preparedness, and COVID curriculum changes. **CONCLUSIONS:** Overall AT educators have a positive agreeable perception about interprofessional collaboration. AT educators employ IPE strategies in line with the AT Associations white paper on IPE, although they noted consideration must be taken to account for the environment, resources, stakeholders involved, and the goals of the IPE activity deployed. Most AT educators appear to use theoretical frameworks to support the infusion of IPE into the curriculum. Study findings can lay the groundwork for AT educators to better communicate their needs with administrators and to further support the infusion of IPE into the AT curriculum. ***Keywords:*** interprofessional education, athletic trainer educator, athletic training programs, perceptions, strategies, infuse, interprofessional collaboration, collaborative practice

Athletic Training Educators' Perceptions of Interprofessional Education and Educational Strategies Used to Infuse IPE within Athletic Training Programs: A Mixed Methods Approach

Chapter I. Introduction

Athletic Trainer (AT) educators, like other healthcare professional (HCP) educators, recognize the importance of students being able to practice being part of interprofessional (IP) team while in the academy. Although there is a growing amount of research about interprofessional education (IPE) in a variety of health professions, limited information about how ATs are infusing IPE into the athletic training curriculum is available. Educators must seek to understand the most effective ways in which to infuse IPE given the limited amount of time associated with AT educational programs, and the compact nature of the curriculum. Educators must ensure that the educational environment maximizes limited time and promotes meaningful learning experiences which are linked to program curricular goals. As an AT educator, we are interested in understanding the perceptions of AT educators' specific to IPE, and the educational strategies they use to infuse IPE within their curriculums. To conduct this research, a mixed method approach will be most advantageous.

Background

As part of the healthcare team, ATs are involved in numerous aspects of healthcare. ATs are highly educated professionals who must complete a minimum of a master's degree in AT. As part of their role, ATs educate the community, and their patients, and continuously advocate, for their patients throughout the spectrum of care, regardless of the setting the AT works in. For example, ATs are commonly recognized as HCPs who work with athletes within professional

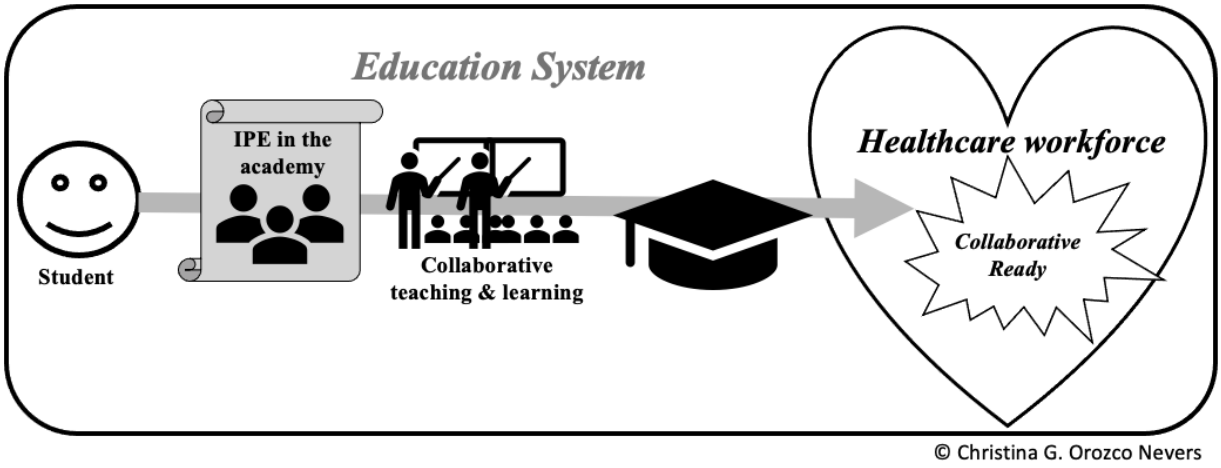
sports, colleges, and schools, but they also work in emerging settings such as performing arts, the military, public safety, research settings, occupational health, physicians' practices, healthcare administration, and in hospitals (NATA, n.d.a). Within these settings ATs evaluate, treat, and rehabilitate patients. ATs are both accountable to and collaborate with other HCPs. Within each of the health care environments, ATs play a unique, and key role as part of the IP healthcare team providing what is called collaborative practice (CP).

To fully understand the AT's role in CP, we must first explore what IPE means, and how we prepare our ATs as well as other HCPs to engage in CP. IPE is when "students from 2, or more professions learn about, from, and with each other to enable effective collaboration, and improve health outcomes" (WHO, 2010). The literature supports that IPE promotes CP which "in healthcare occurs when multiple health workers from different professional backgrounds provide comprehensive services by working with their patients, their families, caregivers, and communities to deliver the highest quality of care across settings" (WHO, 2010).

In 2010, the World Health Organization (WHO) recognized the importance of IPE leading to CP and put forth a visual framework depicting how we move through the health, and education system in order to prepare an individual to be collaborative ready. Figure 1 illustrates how a student moves through the academy engaging in IPE, with not only students from other professions, but also educators from different disciplines collaborating, and teaching together to prepare students from different disciplines to learn from, with, and about each other. As a student progresses through the IPE learning experience in the academy, they are securing the skill set needed to become part of the interprofessional collaborative healthcare workforce.

Figure 1

Moving through the Education System, for IPE, and CP

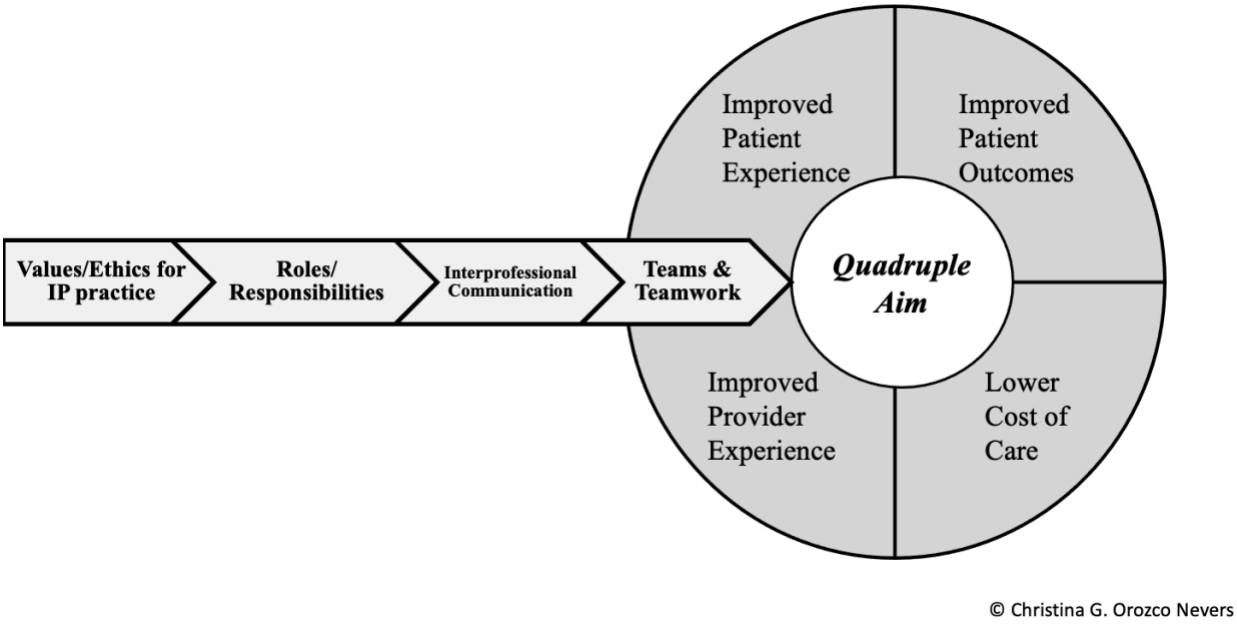


Note. This figure demonstrates how a student moves through the education system to learn about IPE, and to become collaborative practice ready, for the healthcare workforce.

In 2011, the Interprofessional Education Collaborative (IPEC) – an organization created to help IP educators implement IPE - recognized the importance of this framework and created these four core competencies (CC) as shown in (Figure 2) - "values/ethics for IP practice," "roles/responsibilities," "IP communication," and "teams, and teamwork". The Quadruple Aim (QA) - "improved patient experience," "improved patient outcomes," "improved provider experience," and "lower cost of care" - consists of interdependent goals that are recognized to help optimize the performance of the healthcare system. Using both the IPEC CC, and the QA can help to build a network of providers prepared to improve the healthcare system in unison. AT educators should use the IPEC CC as a foundation, for teaching IPE behaviors, and tie outcomes to the QA to allow, for more robust evaluation of IPE.

Figure 2

Goals of IPE, and CP



Note. This figure depicts the goals of IPE, and CP to create the "quadruple aim".

Recognizing the importance of the IPEC CC, and the QA, for preparing effective healthcare professionals, healthcare associations came up with their own recommendations, for IPE, and CP ('NASEM' as cited in Cuff & Forstag, 2019; HPAC, 2019; NCICLE, 2019). Although each organization targeted slightly different populations, and aims as part of their mission, they all had a shared consensus: both educators in the academy, and preceptors in the clinic have a shared responsibility to provide the link between what students are learning, and what they are doing; these organizations recognize interdependency exists to ensure person-centered care; and educational strategies must be rooted in theoretical framework(s) to support and sustain IPE.

Statement of the problem

The National Athletic Trainers Association (NATA) board of directors approved a proposal by NATA's executive committee on education regarding the future direction of athletic training education in 2015. One of the key recommendations in this proposal was that IPE become a required component of the athletic training curriculum. As part of a strategic plan to implement this recommendation, a committee of ATs collaborated to create a white paper (WP) in 2015 exploring IPE in AT (Richardson & Breitbach, 2015). This WP discussed the benefits, barriers, teaching strategies, learning experiences, recommendations, and theoretical frameworks that could be used in IPE within the profession of athletic training. Although this WP did discuss recommendations made by other HCPs regarding the infusion of IPE into their curriculums, a clear understanding of how AT educators have implemented these recommendations is not known.

Although many would argue that IPE is implied in athletic training curriculum, and the clinical practice arena (Goeckel et al., 2017), others would suggest that many ATs may not have formal training in IPE, and often work alone in professional practice. As a result, some ATs may not be experiencing CP in the clinic at the same level as other HCPs. Regardless, the 2015 WP provided information, and guidance on IPE pedagogical strategies, and theories that provided the academic community a strong foundation upon which to build (Breitbach & Richardson, 2015). In 2018 the Commission on Accreditation of Athletic Training Education (CAATE) further mandated that IPE be included as an accreditation standard beginning in July 2020 (CAATE, 2018). To date, CAATE has not provided any specific recommendations, for program implementation of IPE learning experiences (CAATE, 2019), nor do we have a clear understanding of AT educators' perceptions regarding the impact of IPE on the profession. Thus,

to aid the AT education community in meeting, and advancing this accreditation standard, we must explore the athletic training educators' perceptions regarding IPE, as perceptions impact our actions. Additionally, we must seek to understand the educational strategies currently being used to infuse IPE within athletic training programs (ATPs), and AT educator's perceived effectiveness in creating collaborative professionals.

Theoretical/Conceptual Framework

Perception is a way a person interprets, and organizes the information received from the environment into something meaningful based on prior experiences, although this interpretation can be substantially different from reality (Pickens, 2005). For example, the way a professional makes a judgement about another professional is through their own interpretation of their knowledge, and experience of that professional. It may be based on inaccurate information, but it is considered perception by that professional (McKay, 2004). The same must be considered about a professional, and IPE. The authors expect that an educator will make a judgement about IPE based on their own interpretation of their knowledge, and experience about IPE. Perception has often, and incorrectly been used synonymously with attitude. Attitude is a selected way of thinking and is the way in which one reflects and feels about something. This is different from perception and is not the focus of this study.

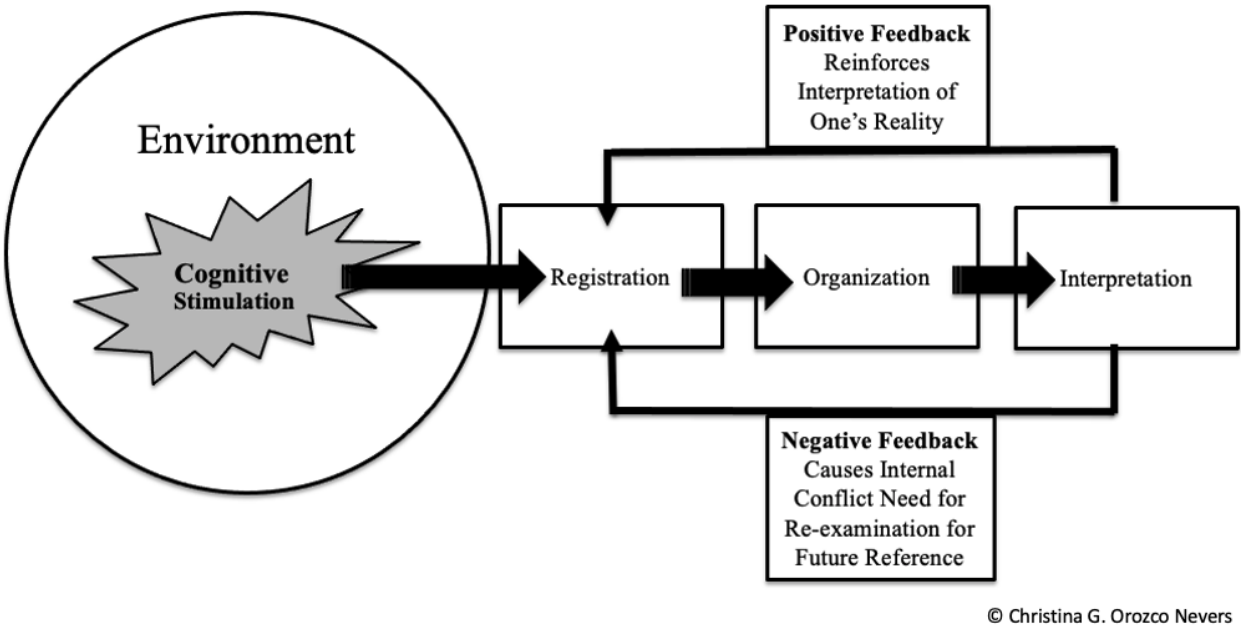
Pickens's four stages of perception are stimulation, registration, organization, and interpretation (Figure 3). Cognitive stimulation follows a situation encountered within one's environment. Receptiveness to cognitive stimuli is highly selective and may be limited by several personal factors such as by a person's beliefs, attitudes, motivation, and personality (Assael, 1995). Registration is based on certain information received and experienced from the environment. Organization is based on prior experiences, and several personal factors.

Interpretation is how one analyzes, and understands based on prior experiences, and personal factors. A person will interpret this experience in a positive, or a negative way, then the individual will process this information, which in turn is then reinforced, and continues to influence to an individual's personal factors. People are selective in what they perceive and tend to filter information based on the capacity to absorb new data, combined with preconceived thoughts (Pickens, 2005).

Pickens's Four Stages of Perceptions

Figure 3

Pickens's Four Stages of Perceptions



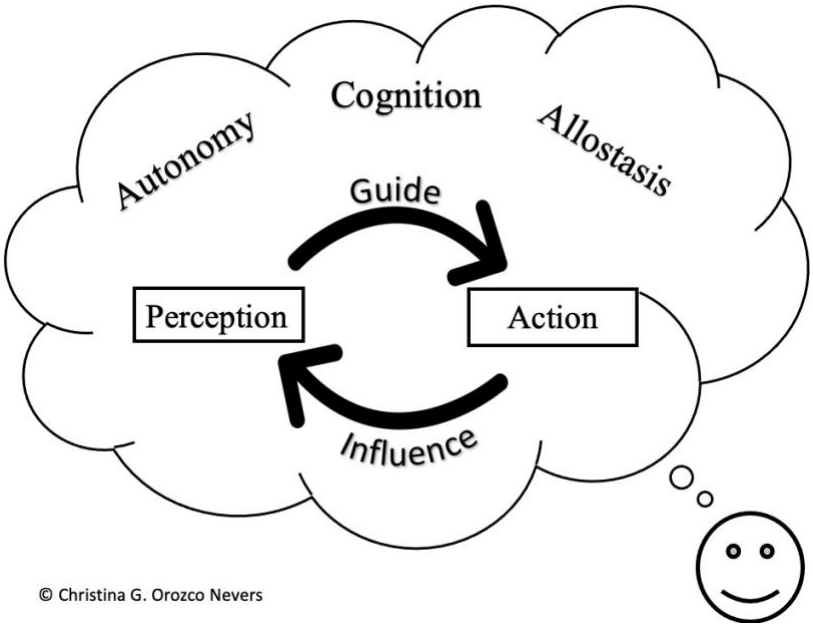
Note. This figure demonstrates the four stages of perception, cognitive stimulation from the environment, registration, organization, interpretation, and the positive, or negative feedback, that reinforces the interpretation of one's reality.

Reciprocal Perception Action Theory

With an understanding of perception, we will review how perception influences action (Figure 4). There is a reciprocal link between actions in cognition where perceptions guide action, and action influences what is perceived. This continuous reciprocal causation (CRC) occurs when a system is continuously affecting, and simultaneously being affected by activity in some other system (Clark, 1997). In essence, one system causes effect in a second system which then causes effect in the first system, reinforcing the dynamic, and causing the process to continue. Perception, and action are reciprocally coupled, and mutually dependent to help one make sense of the world (Clark, 1998; Vernon et al., 2015). These processes all maintain the individual's autonomy, and are inherently circular in nature (Clark, 1998; Vernon et al., 2015). These processes are self-organizing, self-producing, and self-maintaining – in other words, self-regulating, or allostasis, are proactive instead of reactive, and help to explain the reciprocity of perception, and action (Clark, 1998; Vernon et al., 2015).

Figure 4

Reciprocal Perception Action Theory



Note. This figure depicts how perception influences action as described by Clark (1998), and Vernon et al. (2015).

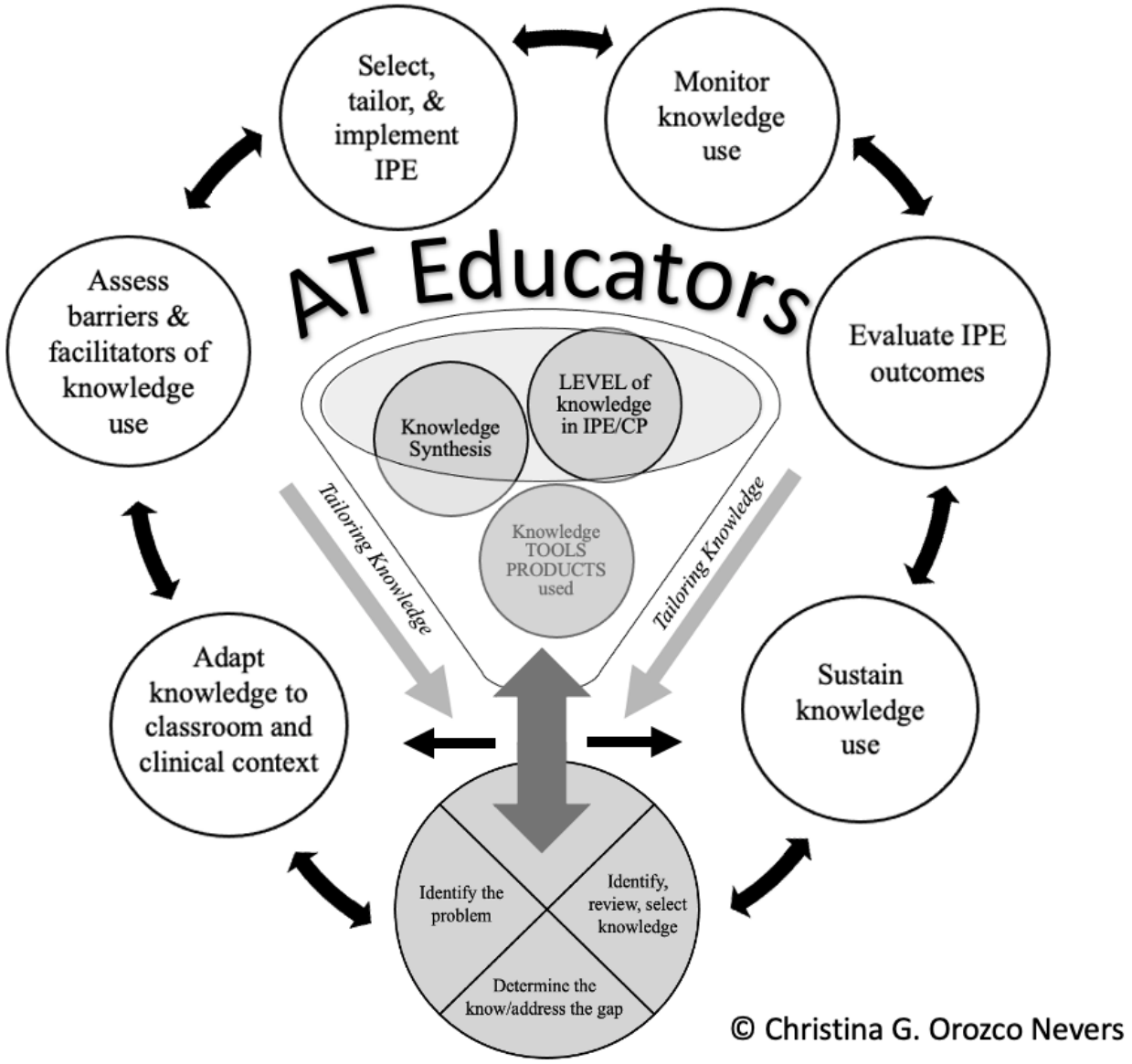
Knowledge to Action Theory

The knowledge to action theory (K2A) theory (Figure 5) helps to explain how AT educators use, and adapt their knowledge, and turn this into action within the academic environment. The funnel in Figure 5 helps us to understand the AT educators' level of knowledge in IPE, and CP, how they synthesize that knowledge, and what knowledge tools/products are being used. Once the educator moves through the "funnel", then they will need to adapt the knowledge towards IPE. The tailoring, and uptake of knowledge can be influenced by issues related to knowledge adopted, the potential adopters, and the context/setting to which the knowledge will be used (Crockett, 2017; Graham et al., 2006). This knowledge can inform each phase of the action cycle, whereas the funnel can rotate to feed into different phases (Crockett, 2017; Graham et al., 2006). The action cycle which surrounds the funnel can occur sequentially, or simultaneously, and represents a range of activities needed, for knowledge implementation (Crockett, 2017; Graham et al., 2006).

This framework provided a lens to help determine how AT educators are using their knowledge. Therefore, we sought to ask AT educators, "What are your doing at this action stage?", "How are you adapting to IPE?", "What are the barriers, and facilitators to implementing IPE?", "What have you potentially modified, or implemented to address IPE?", and "Are you evaluating IPE?" Using this theory, we assessed the AT educator's ability to extrapolate the knowledge from evidence-based learning (EBL), and how one had applied it to their teaching, and if that application made a difference. Therefore, it was important to monitor their knowledge use.

Figure 5

Knowledge to Action Framework



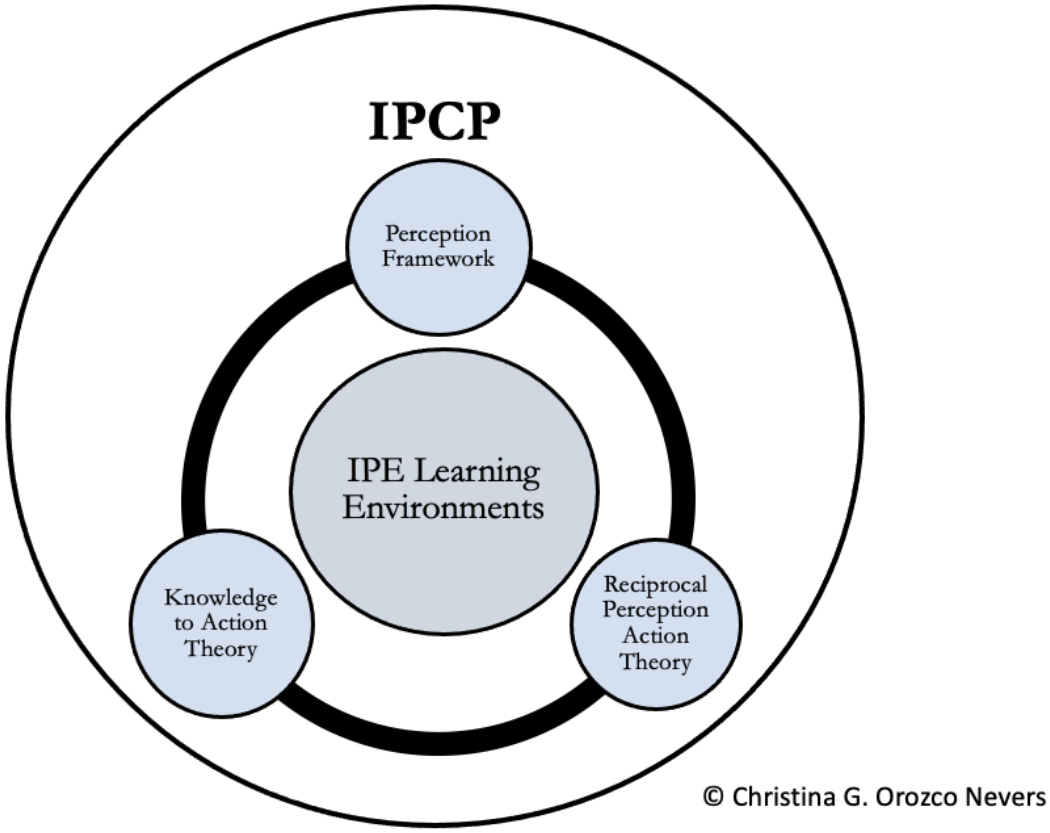
Note. Knowledge to Action Process. This figure demonstrates the knowledge to action cycle adapted from Graham et al. (2016). The first component of the model is the knowledge creation "funnel" and is broken down into 3 phases. This then moves to the action cycle, which is a range of activities needed, for knowledge implementation. The action cycle may not be sequential and can start at any phase of the cycle. (Crockett, 2017).

Conceptual Framework Linkage

Taken together the perception framework, reciprocal perception action theory, and knowledge to action theory will be used as the conceptual frame to guide this proposed study which **will explore Athletic Training Educators' Perceptions of Interprofessional Education, and Educational Strategies Used to Infuse IPE within Athletic Training Programs**. In figure 6, the perception framework speaks to 'perception' of the AT educator, reciprocal action speaks to the 'recurrence of perception, and action', and K2A speaks to 'how its translated into practice'; these three theories are equally weighted to impact IPE.

Figure 6

Conceptual Framework Linkage



Note. Conceptual Framework Linkage, for IPE in AT. These three frameworks are equally weighted to impact IPE.

Purpose of the Study

The first purpose of this study is to explore athletic training educators' perceptions of IPE, and the strategies they employ. The second purpose is to identify if IPE experiences are rooted in an educational philosophy, and strategy. The third purpose is to determine the relationship between perceptions of CP in IPE, and years of professional practice experience; formal training in IPE; years of teaching experience; years of teaching IPE; and number of hours of IPE instruction. AT educators help promote CP within the academy, and it is important to identify how this is being done. Exploring AT educators' perceptions, and strategies will help educators to enhance our infusion of IPE into the AT curriculum.

Research Questions and Hypotheses

The following research questions (RQ) are descriptive in nature, and do not have accompanying hypotheses since they are not predictive in scope. The central research questions (CRQ) (Creswell & Clark, 2017) helped to summarize the data, and aimed to identify:

CRQ 1. What are AT educators' perceptions associated with infusing IPE into AT curriculum?

CRQ 2. What strategies are AT educators using to infuse IPE into AT curriculum?

CRQ 3. What theoretical framework(s) are AT educators using to guide IPE into AT curriculum?

The associated sub-questions (RQ4 – RQ9) (Creswell & Clark, 2017) were asked in the qualitative research survey, and were:

RQ4. Are AT educators **evaluating** IPE strategies?

RQ5. What are AT educators' **perceived barriers** associated with infusing IPE into their curriculum?

RQ6. What are AT program educators' **perceived pressures** associated with infusing IPE into their curriculum?

RQ7. What are AT educators' **perceived facilitators** associated with infusing IPE into their curriculum?

RQ8. What are AT educators' **perceived benefits** associated with infusing IPE into their curriculum?

RQ9. Do AT educators **feel prepared** to infuse IPE?

RQ10. How has IPE programming changed because of the 2019 Coronavirus Disease (COVID-19)?

The following research questions (RQ11-RQ15) determined correlations between perceptions, and variables related to the AT educators' professional practice experience, and teaching experience.

RQ11. What is the **relationship** between AT educators' **years of professional practice experience,** and **perceptions** of CP in IPE?

H_0. AT educators' **years of professional practice experience** will not influence perception of CP in IPE.

RQ12. What is the **relationship** between AT educators' **formal training in IPE,** and **perceptions** of CP in IPE?

H_0. AT educators' **formal training in IPE** will not influence perception of CP in IPE.

RQ13. What is the **relationship** between AT educators' **years of teaching experience,** and **perceptions** of CP in IPE?

H_0. AT educators' **years of teaching experience** will not influence perception of CP in IPE.

RQ14. What is the **relationship** between AT educators' **years of teaching formal IPE,** and **perceptions** of CP in IPE?

H_0. AT educators' **years of teaching IPE** will not influence perception of CP in IPE.

RQ15. What is the **relationship** between AT educators' **number of hours of IPE instruction per academic year,** and **perceptions** of CP in IPE?

H_0. AT educators' **number of hours of IPE instruction** will not influence perception of CP in IPE.

Research questions entailed a balance of open-ended qualitative and closed-ended quantitative research questions to acquire information that allowed me to explore, describe, and better understand, and address this relatively novel topic area. Further research questions gathered demographic data of the athletic training program (ATP), and the AT educators' professional, and teaching experience. The responses to the above research questions will enable educators in athletic training to take a more affirmative role in infusing IPE learning experiences and understanding how to evaluate their outcomes.

Summary

IPE is a central topic within healthcare education, and, yet in 2015 "less than 50% of ATPs were not infusing IPE" (Breitbach, 2015). If we understand AT educators' perceptions, and identify IPE strategies used in ATPs, we can help guide AT educators with infusing IPE, and understand the value of those strategies.

Chapter II. Review of the Literature

ATs are highly qualified, multi-skilled HCPs who collaborate with physicians to provide preventative services, emergency care, clinical diagnosis, therapeutic intervention, and rehabilitation of injuries, and medical conditions (NATA, n.d.b.). An AT's goal of care is to minimize subsequent impairments, and functional limitations to provide medical services to all types of patients. ATs relieve widespread, and future workforce shortages in primary care support and outpatient rehab professions while helping to improve functional outcomes, and specialize in patient education to prevent injury, and re-injury (NATA, n.d.b.). Regardless of their practice setting, ATs practice athletic training according to their education, and state practice act (NATA, 2010).

ATs are primarily responsible, and work within two primary settings: in education, and in the clinical/medical settings. Within the clinical setting, ATs are primarily responsible, for their patient's care often while coordinating services with multiple HCPs to help provide the best available care to the patient. Clinical ATs may also serve as a preceptor – a clinical teacher – while supervising ATP students. AT educators in the classroom have a unique role in developing and maintaining a curriculum that must support an AT student's hand-on skills, and cognitive development. The curriculum design, for AT students is atypical in that their clinical experience begins during their first semester in their AT education as opposed to other healthcare disciplines which begin later in the curriculum. During curriculum development, and implementation, AT educators must ensure that the educational program is compliant with the CAATE accreditation standards while also incorporating elements of IPE as required by the 2020 accreditation standards, and recommendations provided by other major health organizations.

Empirical Research

Healthcare professions educators' perceptions

In our review of the literature, other HCP educators' perceptions of IPE varied across professions. In 2019, Hughes et al. surveyed occupational therapy (OT) educators, and found more than half had positive beliefs, and perceptions about IPE, believed IP environments kept them more enthusiastic about, and more interested in their jobs, regularly included IPE in their curriculum, and wanted to see greater emphasis on IPE in their curriculum. Less than half of the OT educators believed IPE enhanced, or improved their learning environment, or improved others' understanding of OTs (Hughes et al., 2019). Case studies was the most popular method of IPE instruction. Barriers reported were the limited number of faculty to implement IPE, time constraints of faculty's schedule to plan, and implement IPE (Hughes et al., 2019).

Another study by Lash et al. in 2019, surveying pharmacology (Pharm), physician assistant (PA) educators, and Doctor of Osteopathic Medicine faculty (DO) found perceived benefits were noted in patient care, and team-based learning experiences; favored increasing IPE opportunities; expressed more support, for IPE within their college; were more enthusiastic about IPE in the classroom, and perceived greater benefits from IPE (Lash et al. in 2019). Commonly reported IPE activities included seminars on IPE, student competitions, and health fairs. All faculty members generally agreed IPE demonstrated benefits in patient outcomes, IPE was feasible although challenging given curriculum requirements, there was a lack of willingness to serve as a preceptor, and there was a perceived need, for additional training to implement IPE (Lash et al. in 2019).

Additionally, HCP faculty in other professions continued to report numerous benefits, and barriers to IPE. Bennett et al. (2011) reported nursing (NURS), speech language pathology

(SLP), and medicine (MED) faculty noted barriers to IPE as leadership, curriculum, costs, and funding. Industry challenges reported were complications associated with accreditation standards, and potential negative IPE experience in novel clinical placements could discourage further IPE involvement (Bennett et al., 2011). In 2015, NURS, and physician faculty noted the most powerful IPE experiences were facilitated by faculty, IPE within constructive clinical environments were crucial, for success, and leadership commitment to faculty engagement, and development was imperative, for IPE implementation (Loversridge & Demb, 2015). Barriers reported were IPE ranked low, colleagues with less exposure to IPE were harder to convince about IPE, programs depended largely on adjuncts, or faculty limited in clinical teaching, or not part of faculty discussions, and development, IPE faculty development is undermined by competing time commitments, and time constraints, complexities of sharing resources, and the need, for parallel, and comprehensive changes in school's curriculum (Loversridge & Demb, 2015). Olenick et al. (2019) surveyed NURS, MED, Pharm, physical therapy (PT), OT, PA, and social work (SW) faculty who perceived that IPE positively impacted patient care, student learning, and healthcare teams' interactions. Not surprising, coordination, discipline culture, and scheduling issues were noted as the primary negative factors preventing them from engaging in IPE (Olenick et al., 2019).

Clinical Athletic Trainer perceptions

Literature reviewing perceptions of IPE in athletic training focus on the clinical AT. Hankemeier, and Manspeaker (2017, 2018) surveyed AT clinicians, and found their perceptions were directly influenced by prior work experiences, having worked directly with other HCPs, and having a physician on-site. Hankemeier, and Manspeaker (2017, 2018) also found ATs agreed CP is important, and beneficial to patient care, and yet were not practicing in this manner.

Only 4% of patient care occurred in a collaborative manner (Hankemeier & Manspeaker, 2017, 2018). ATs also perceived they were not viewed as consistent, and valued members of the IP CP team. No group differences were found between persons with, or without previous IPE experiences (Hankemeier & Manspeaker, 2017, 2018). Challenges reported to CP included time, knowledge, opportunities, and collaborative team factors. Drawbacks reported to CP included roles within an CP team, and communication factors. Benefits reported of CP included patient care, and a team approach to healthcare. Resources helpful to CP included communication mechanisms, and educational opportunities (Hankemeier & Manspeaker, 2017, 2018).

Kraemer et al. (2019) explored perceptions (beliefs, benefits, and barriers), and experiences of practicing ATs working collaboratively with other HCPs. Benefits reported were providing comprehensive patient care, building an understanding of each other's profession, and professional growth. Barriers reported were limited knowledge of other providers' scope of training, inadequate communication, work setting, work schedules, providers' attitudes toward each other, and collaboration (Kraemer et al., 2019). Kraemer et al. (2019) recommended that clinicians focus on building IP relationships with other providers, establish regular communication, and work to understand each other's scope of training (Kraemer et al., 2019).

IPE strategies used in athletic training programs

In reviewing the strategies used in ATPs, recent studies have reported a range of IPE activities. Sage (2019) using a longitudinal curriculum approach integrated interrupted case, vignette cases, standardized patient (SP) cases, and simulation during clinical education with debriefing activities led by other HCPs. Thrasher, and Anderson (2019) used SPs in collaboration with both AT students, and SW students. AT educators in this study identified scheduling as a major barrier, and used debriefing, and reflection as a mode, for IPE. Gaven et al.

(2019) had AT students work with health behavioral students to develop a healthcare plan, and held debriefing after the activity. Charles-Liscombe et al. (2019) created an IPE activity using the IPEC CC, and International Classification of Functioning, Disability, and Health Model (ICF) to highlight health disparities in a local community to engage students through critical inquiry using problem solving, and patient-centered advocacy. AT students participated in reflection, and debriefing exercises, and discussed perceptions, biases, and knowledge of team roles/responsibilities with AT faculty (Charles-Liscombe et al., 2019).

Further research in athletic training education has revealed AT educators at various institutions that have collaborated with other HCPs to plan IPE. Elder et al. (2019) brought together several institutions in higher education to collaborate, for IPE, and developed an 'IPE Collaborative' group. Each institution in this collaborative group provided support to this initiative by hosting, and providing a budget, for each IPE activity. Activities in this collaborative included an 'IPE day', 'poverty simulation', 'opioid crisis case study', and a 'pediatric case study' (Elder et al., 2019). Kirby (2019) had multiple faculty from different disciplines form an IPE committee to design, and teach IPE experiences. Faculty created a concussion simulation scenario where IPE teams collaborated to develop a patient care plan, and discussed their professional contributions (Kirby, 2019). Students participated in reflection, and debriefing exercises led by a faculty facilitator.

Breitbach et al. (2013), and Pinto Zipp et al. (2014) discussed how their institution's IPE faculty developed an IP collaborative/initiative to help deliver IPE programming, and shared several common practices, for successful implementation of IPE. Both authors discussed how each *developed an IPE center*; *provided support, for faculty* - development, continual follow-up, integrated IPE into faculty workload, benefits for IPE involvement; *provided faculty*

development – created a multidisciplinary IPE taskforce, allowed for engagement/collaboration; *implemented IPE timing* at major transitional points in, or is embedded in the curriculum; *implemented several IPE strategies* that focused on student skill development such as small group work, critical-thinking exercises, reflection, and debriefing (Breitbach et al., 2013; Pinto Zipp et al., 2014). Both institutions highlighted initiatives that are in place to support IPE faculty, and the integration of IPE into the curriculum.

This review of empirical research highlights how each program is doing something different, and not just one IPE activity in athletic training. ATPs appear to include IPE in their programming, but the focus is more on individualized IPE activities, and experiences: specifically, 'stand-alone' experiences have been primarily discussed in recent literature.

Theoretical Research in athletic training addressing IPE

In current athletic training research, there is little to no discussion on the philosophies, or frameworks used to infuse, and help sustain IPE initiatives involving athletic training. A review of IPE models between 2005, and 2010 revealed only 47% of studies reported using learning theories in the development, and implementation of an IPE program (Abu-Rish et al. 2012; Olson & Bialocerkowski, 2014) as cited in Breitbach, and Richardson (2015), but this review did not include the profession of athletic training. There is also a limited understanding on how theories are used, and which theories are most effective in IPE development (Abu-Rish et al., 2012; Olson & Bialocerkowski, 2012, as cited in Breitbach & Richardson, 2015). Fewer studies that involve athletic training discuss the use of theoretical frameworks to support IPE programming (Breitbach et al., 2013; Charles-Liscombe et al., 2019; Pinto Zipp et al., 2014).

Theories that have been commonly used in IPE programming are adult learning theory/andragogy, and contact hypothesis (Abu-Rish et al., 2012; Olson & Bialocerkowski,

2012, as cited in Breitbach & Richardson, 2015). These initially would not be suitable, for our study, considering, adult learning theory targets the adult learner, and contact hypothesis focuses on the interaction between group members, when my research focus is on the individual – the AT educator and their perceptions of IPE, and CP. To address the AT educator, and their perceptions of IPE, and CP, we use Pickens' (2005) 'theory of perception'. This best guides my understanding of the occurrence of perception of the AT educator. To help explain the recurrence of perception, and action, we use 'reciprocal perception action theory' as discussed by Clark (1997 & 1998), and Vernon et al (2015). Finally, we use 'knowledge to action' theory to describe how the AT educator's perceptions to actions are translated into practice (Graham et al., 2016).

Research Designs Utilized within this Topic

Research designs commonly used to assess 'perceptions' used online surveys (Hankemeier & Manspeaker, 2017, 2018; Hughes et al., 2019; Kraemer et al., 2019; Lash et al., 2019), or interviews/focus groups (Bennett et al., 2011; Loversridge & Demb, 2015; Olenick et al., 2019) that used descriptive, and correlation statistical methods. Descriptive studies have typically described beliefs, barriers, challenges, drawbacks, recommendations, and resources from other IPE HCP educators. Correlation studies have typically described correlations between beliefs, benefits, barriers, and the professional IPE experiences of ATs (Hankemeier & Manspeaker, 2017, 2018; Kraemer et al., 2019).

There does not appear to be an exclusive IPE survey, or tool to address our line of inquiry that target perceptions, and experiences of IPE, and CP within our population, AT educators. Most tools predominantly target nurses, and physicians within hospital, and healthcare center settings (Peltonen et al., 2019). A review of 29 instruments measuring IP collaboration by

Peltonen et al. (2019) also determined that psychometric testing of these tools was unsystematic, focusing predominately on construct, and content validity, and internal consistency, further suggesting the need to strengthen evidence in the reliability, and validity of such instruments. Variation in instruments is diverse, and their properties measuring interprofessional collaboration are fragmentary, and indefinite (Peltonen et al., 2019). A limitation within this review was due to the exclusion of instruments that focused on collaboration within one professional group, or collaboration within an education setting (Peltonen et al., 2019), although including instruments targeting these contexts would still not address our population of AT educators.

Of the available tools there were some survey instruments that are available to use to assess perceptions of IPE, or CP. The 'Generic Role Perception Questionnaire' (McKay 2004) targets healthcare students' perceptions about the roles of other professions in IPE. The 'Interdisciplinary Education Perception Scale' (Leitch, 2014; MacFayden, 2007) gauges perceptions of participants in interdisciplinary programs. The modified 'Index of Interdisciplinary Collaboration Questionnaire' measures self-reported perceptions of collaboration among team members, specifically in social workers (Bronstein, 2002). Various authors who research perceptions of individuals involved in IPE, have commonly used survey tools that assess attitudes, and adapt the tools to assess perceptions (Hughes et al., 2019; Kraemer et al., 2019). This would allow me to determine not perceptions, but attitudes.

Summary

Based upon our review of the literature we were able to identify various HCPs' perceptions regarding IPE, perceived barriers, challenges, benefits, strengths, and program facilitators associated with IPE, and identify various tools used to assess 'perceptions' in other HCPs. Specific to athletic training based upon the literature reviewed, we were able to identify

AT clinicians' perspectives about CP including their beliefs, barriers, challenges, drawbacks, recommendations, and resources that were found to be helpful. We were also able to determine several teaching strategies that have been used to implement IPE in athletic training, although they appear to highlight stand-alone experiences considered 'extracurricular in nature as the experiences were not tied to any one class experience, but rather a core group of learning experiences that all students within the school participate in,' (Breitbach & Richardson, 2015). Based upon the literature review we also do not know if IPE is being explored in the clinical/medical setting involving AT students. We could only infer that a majority of interactions do not involve concepts of IPE, and AT students do not interact with other HCPs during their clinical (Walker et al. 2019). There also appears to be a limited understanding as to which theoretical frameworks are being used in ATPs IPE programming, and which theories appear to be the most effective (Breitbach et al., 2013; Charles-Liscombe et al., 2019). AT educators may also misunderstand concepts of IPE, and CP because of a lack of common language, and appreciation for their role in the future of healthcare (Breitbach & Richardson, 2015).

In ATPs today, we do not know AT educators' perceived barriers, pressures, facilitators, and benefits in IPE programming. We also do not know AT educators' perceptions of CP, the global IPE strategies used to infuse IPE into their curriculum, nor do we know the theoretical frameworks used to sustain IPE in ATPs. If we better understand AT educators' perceptions, and how this impacts their actions, this can help us to move forward into infusing IPE into the ATP curriculum, and ultimately promote CP.

Chapter III. Methods

Type of Study

The study employed a mixed methods approach. The study design was a non-experimental, cross-sectional, exploratory, online survey encompassing a three-phased approach. Recruitment, and data collection were from the same pool of participants that completed both the quantitative, and if chosen to, completed the qualitative components of the study. Our phased approach allowed the participant to first complete the quantitative part of the survey in phase 1, with the option to continue, and complete the phase 2 qualitative part of the survey. Both the quantitative measures, and qualitative measures were collected in separate phases, but in one survey distribution.

Sampling: Participants

The target population were AT educators involved in the planning, or delivery of IPE in accredited professional AT master's degree programs. The same pool of participants were able to complete the quantitative, and (if preferred) the qualitative components of our study. The inclusion criteria were as follows: adults over 18 years of age; Certified Athletic Trainers, or certified/licensed healthcare professionals; able to read, and understand English; full-time, or part-time AT educators who are involved in IPE; AT educators teaching in CAATE accredited programs; AT educators in entry-level master's programs; Educators in AT professional programs in 'good-standing'; and AT educators working/teaching in the United States. Exclusion criteria were not meeting the inclusion criteria, and any AT educators solely teaching in an AT residency, or AT post-professional program; AT professional programs on 'probation', 'voluntary withdraw', or 'seeking accreditation'; not a student; not an individual with impaired decision-making capacity; not an economically, and/or educationally disadvantaged person; not a

prisoner; not an illiterate, limited, or no English language proficiency, and not children under 18 years of age.

We used a convenience, and snowball sampling method. We identified potential study participants through the Commission on Athletic Training Education (CAATE) open access website, under the 'search programs' feature. We accessed this population through the CAATE open website 'search programs' feature, which is available to the public, and is free of charge. Using this search feature, we narrowed down the criteria to 'program type' as 'professional' (programs), and 'degree type' as 'master's' (degree level) of ATPs within the United States. From this list, we were able to access each ATP director's contact information. We collected the program directors' email addresses to send the recruitment email, for the study. In this recruitment email, we asked the program director to then forward the email with the study information (letter of solicitation/consent form, and study link to Qualtrics) to their AT faculty that are involved in IPE. AT faculty involved in IPE determined if they met the study criteria, and volunteered to participate, or not participate in the study.

One hundred, and sixty-three programs were identified as the current number of professional level master's degree ATPs that met the initial study criteria (professional, master's) to send the solicitation email to (identified through the CAATE database 'search programs' feature). CAATE had mandated as part of the athletic training Education Accreditation standards that IPE must be a required component of athletic training programming beginning July 2020. Given this requirement, a minimum of one faculty member should be involved in the IPE programming, if a faculty member from each program were to participate.

Additional potential study participants also self-identified through closed LinkedIn groups, the 'NATA- National Athletic Trainer's Association', and the 'NATA- Interprofessional

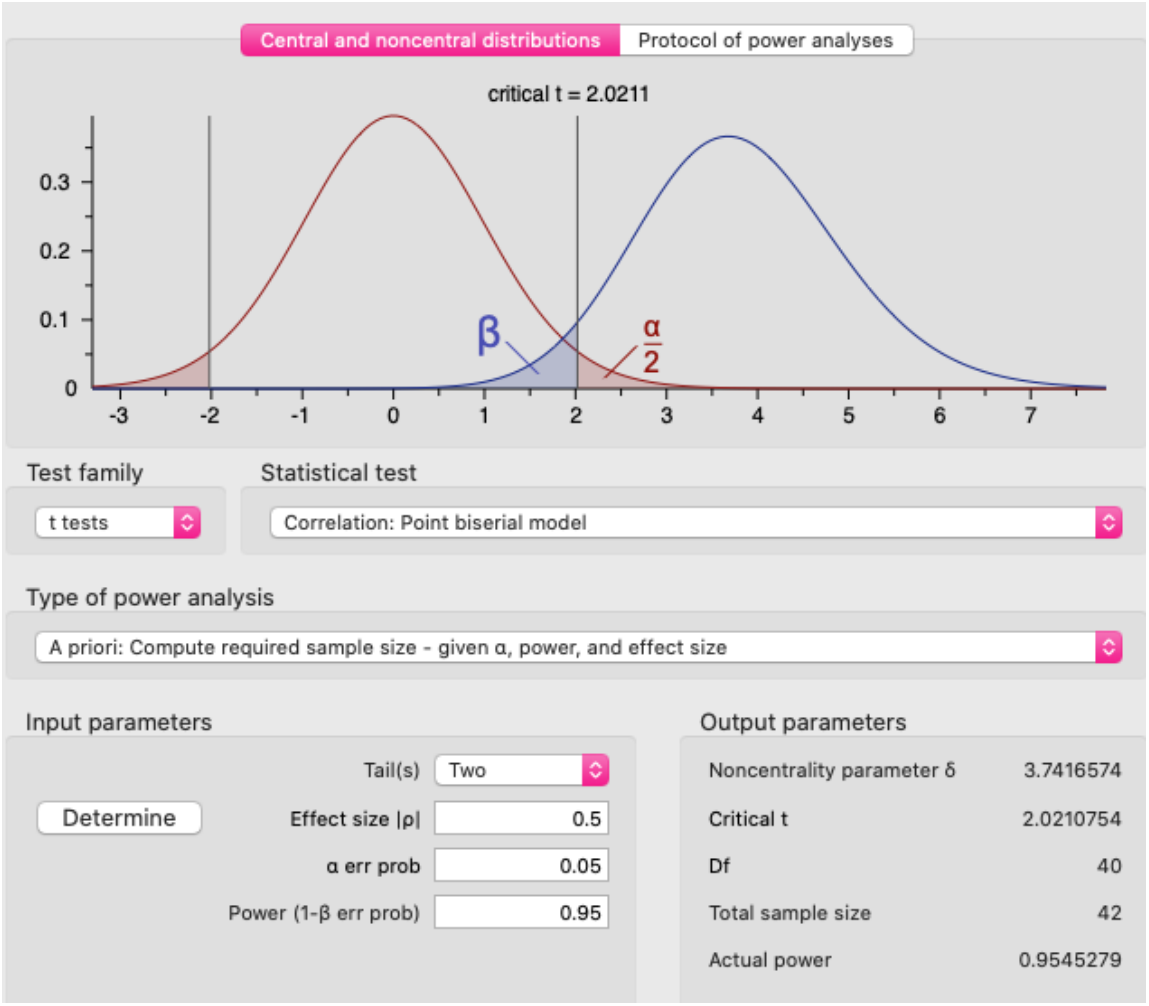
Education and Practice Interest Group'. Closed LinkedIn groups 'NATA- National Athletic Trainer's Association', and the 'NATA- Interprofessional Education and Practice Interest Group' are accessed free of charge and are only accessible to persons who were granted permission to become part of the group by the group's administrator. An attachment to the letter of solicitation/consent form, and study link were included in a post within these closed LinkedIn groups.

In the social sciences a 10-15% response rate is acceptable when there is no prior relationship established, and if we have not surveyed my population before (DeLuca, 2018a; DeLuca 2018b). An A Priori G*Power Analysis was calculated, for a t-test correlational point biserial model to help determine the minimum sample size needed, for desired statistical effect, for my correlation research questions with null hypotheses. G-power calculated a minimum of 42 participants. To account, for attrition which we anticipated being less than 15%, we multiplied the total of 42 participants by 15%. This totals to 48 individuals needed, for desired statistical effect (Figure 7). A two-tailed test was selected because we expected to see an effect in both directions.

As per qualitative data procedures (phase 2), study enrollment ended once saturation was met. Using fewer than 20 participants during a qualitative study research study results in more focused data (Creswell & Clark, 2018). It was assumed that saturation would be met by reviewing 20 participants' responses to the open-ended comments, and that at least 20 of the total N of participants would complete phase 2 of the survey. At two and a half months, the study had received 19 qualitative participants. The study was kept open for two more weeks, were we had two participants completed and submit phase 2 the same day. Therefore, we had a total of 21 qualitative participants. The study was open for a total of three months, for which at that time we did not receive any further participants and closed the entire survey.

Figure 7

*A priori G*Power Analysis*



Note. A priori G*Power Analysis of the sample size needed to reach statistical significance to address the quantitative research questions.

Variables and their definitions

Demographics, perceptions, and strategies were collected in the phase 1 quantitative portion of the survey. Independent variables included demographic information. Demographic information collected related to the AT educator's institution of employment, and professional experience, including: Carnegie classification, NATA district number, state of employment,

number of students enrolled in the ATP, faculty rank, years of professional practice experience, any formal training in IPE, years of teaching experience, years of teaching IPE, estimated hours of IPE instruction per academic year, and the frequency with which the AT educator collaborates with other healthcare, and health-related professionals. The dependent variable was the composite score on the mPINCOM questionnaire. Perceptions were defined as "a way a person interprets, and organizes information received from the environment into something meaningful to him, or her based on prior experiences" (Pickens, 2005). Perceptions in our study were related in the context of interprofessional collaboration within IPE strategies included teaching strategies that are used to deliver IPE or learning strategies that could be adapted to accommodate institutional needs, and resources (Breitbach & Richardson, 2015).

In phase 2 the qualitative portion of the survey, data collected involved identifying which theoretical frameworks ATPs used, AT educators' perceptions of barriers; pressures; facilitators; benefits of IPE, and their sense of preparation. Barriers were defined as any obstacles that inhibit the ability to meet an objective. Pressures were defined as the weight of social, or economic imposition (Merriam-Webster, 2020a.). Facilitators were defined as a system, or processes that help make IPE implementation easier. Benefits were defined as something that produces a good, or is helpful; something that enhances, or promotes well-being (Merriam-Webster, 2020b).

Instruments

To address RQ1 (perceptions of AT educators), we used the 'Modified Perceptions of Interprofessional Collaboration Model Questionnaire (PINCOM-Q)', and the 'Interprofessional Education Learning Activity Inventory in Athletic Training.' Both instruments collected quantitative data. The PINCOM-Q was developed by Odegard in 2006, and modified in 2014 by Strype et al. This questionnaire is a self-reported instrument that measures subjective perceptions

of collaboration. Participants were instructed to answer the questionnaire in the context of working within their IPE committee. The aim of the questionnaire was to identify how interprofessional collaboration is perceived by professionals Strype et al. 2014. Strype et al. found face, and content validity, and conducted an exploratory, and confirmatory factor analysis (CFA). The CFA found reliability under three constructs 'group climate α=.90,' 'influence α=.91,' and 'personal motivation α=.83'. Perceptions measured are at an individual level and include questions relating to 'work motivation', 'professional power', and 'role expectations.' Group level perceptions measured include questions relating to 'social support', 'communication', 'group leadership', and 'coping abilities'. Responses to these questions used a 7-point Likert scale with the lowest score ranked at a 1 – strongly agree, 2 – agree, 3 – somewhat agree, 4 – neither agree, nor disagree, 5 – somewhat disagree, 6 – disagree, and the highest score, 7 – strongly disagree. Lower scores indicated an agreeable perception, whereas higher scores indicate a disagreeable perception. A cumulative low score was associated with an agreeable perception of CP in IPE. Data collected from this instrument were used to address RQ1 relating to the perceptions of AT educators.

To address RQ2 (strategies used in ATP IPE), we developed 'Interprofessional Education Learning Activity Inventory in Athletic Training'. The purpose of this instrument was to determine where respective programs are independently, and collaboratively in the implementation of teaching, learning, and assessment of IPE within their respective program. Nominal data were collected and calculated by quantifying the standardized responses with a numerical value. Data obtained from this inventory were described in frequencies, and were not used to predict anything, or measure any constructs; therefore, this inventory was not validated.

Data Collection Procedures

We emailed the letter of solicitation to all ATP directors in the United States, who met the study criteria. We requested they forward the email to the AT educators in their program involved in interprofessional education. Any AT educator who met the inclusion criteria listed was asked to complete a one-time online survey. If the educator decided to participate, they clicked on the provided survey link found within the recruitment email and began the Qualtrics survey. The first phase was the quantitative portion of the study, which included the demographic questions, the modified Perception of Interprofessional Collaboration Model Questionnaire (mPINCOM), and the Interprofessional Education Learning Activity Inventory in Athletic Training. Following completion of phase 1 of the survey, participants were provided the option to continue their participation, and answer eight open-ended survey questions, to further understand their perceptions of IPE. If the participant chose not to proceed, Qualtrics submitted their responses, and exited the survey. If they chose to participate, they continued to the second phase of the survey. Phase two consisted of qualitative survey questions which sought to capture how AT educators are infusing IPE. Once the participant completed part two, they submitted their survey.

Data Reduction, Processing, and Statistical Analysis

In the phase 3 of the study design, we began data analysis, and collated, and converged the quantitative, and qualitative data from the Qualtrics platform. Perceptions, and strategies were both assessed in the quantitative and qualitative measures because both are of equal weight, and importance. Statistical analysis began by analyzing the quantitative data. The quantitative data consisted of the demographic information, the mPINCOM questionnaire 7-point Likert Scale responses, and the nominal data from the (IPE in AT) inventory. We analyzed the

quantitative data using scales, and counts using descriptive, and inferential statistics such as percentages, frequencies, shapes, and distributions; measures of central tendency such as mean, median, and mode; and effect sizes. Research questions 11 – 15 with hypotheses were analyzed using Pearson's correlation coefficient. Scatterplots were used to confirm the linear nature of the correlation, and the strength of relationship between the two variables (Elliot & Woodward, 2007). Tables were used to examine any disparities between the perception ratings by looking at the difference between the ratings of perceptions, and the demographics (Portney & Watkins, 2000).

For the qualitative analysis, we manually decoded, and encoded the responses from the survey questions using an excel spreadsheet and a Microsoft word document to place them into codes, categories, and themes. We employed first, and second cycle coding practices described by Saldana (2016). In the first cycle coding, we used first order coding which is the initial coding, and included analytical memos taken. In the second order coding process we employed provisional codes, coming from previous literature. In the third order coding we used in-vivo coding which used direct quotes from the participants. The fourth order coding used 'emerging codes' which are new codes that emerged from the data. Fifth order coding was descriptive and summarized the data into a primary topic. In the second cycle, eclectic coding was used, which is a re-coding of my first cycle methods to help tighten, and condense the number of codes into categories, for a more unified scheme.

Intercoder agreement served as an external check during the first cycle, and second cycle coding processes to help come to a full consensus on the themes generated. We established a codebook along with the transcript to be externally checked by the committee chair. The

committee chair, and we reached a minimum of 80% consensus on the codes, categories, and thematic analysis generated.

Once we analyzed both data sets, we converged both the quantitative, and qualitative data to create a better understanding of the participants' responses, and the study's overall purpose. We then compared, and contrasted the study's synthesized data, and discussed my findings in light of the current available literature on the topic.

Human Participants and Ethics Precautions

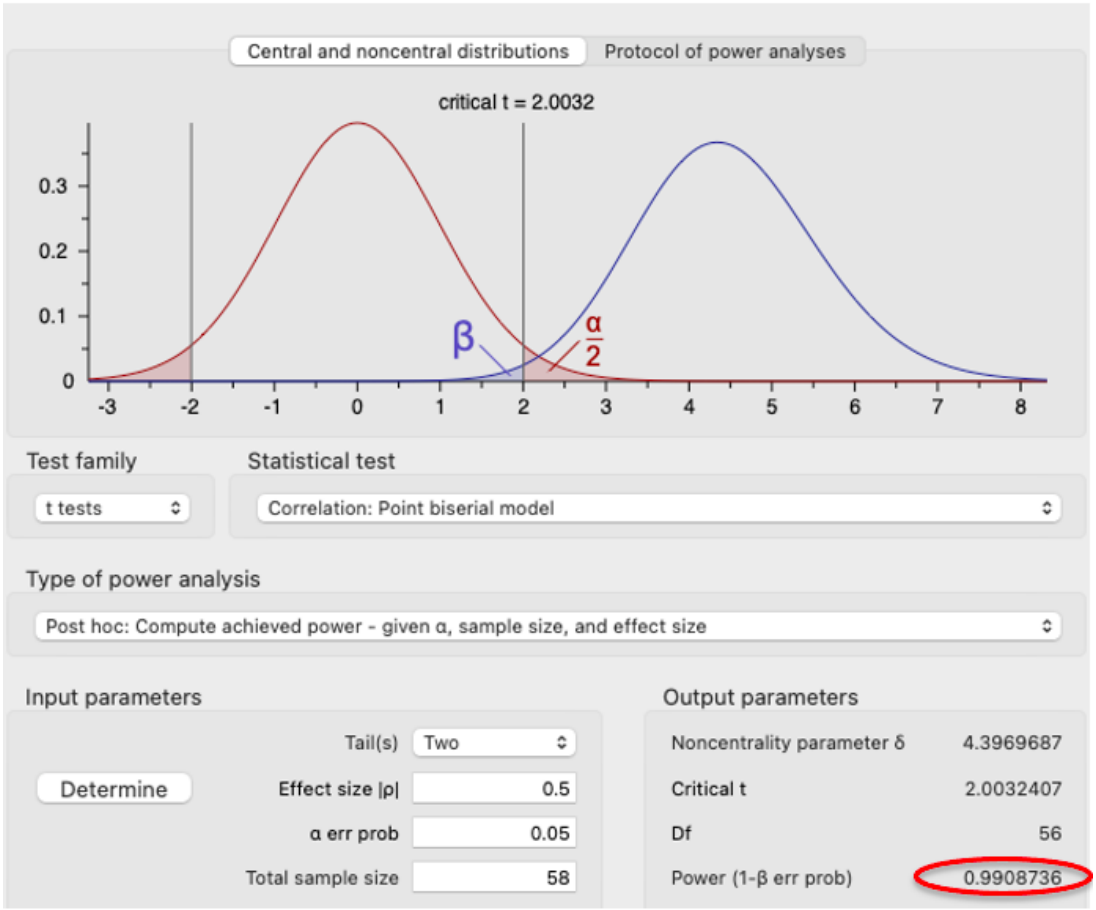
Human participants were used in this study. Ethics precautions were reviewed and approved by the Seton Hall University Institutional Review board.

Chapter IV. Results

A post hoc analysis was first conducted to help determine if the study was sufficiently powered and determine the likelihood one can select among the hypothesis at a desired significance level (DeLuca, 2018a; DeLuca 2018b). A post hoc also helps to determine the probability of making a type II error. A type II error is when there is a failure to reject the null hypothesis, when in fact the alternative hypothesis is true, or an effect is seen. With more power there is less of a chance of committing a type II error and the chance of missing a real effect. Our current power is at 99.08%, therefore we have a 0.92% chance of missing a real effect (Figure 8). According to Cohen (1992) good statistical power is considered greater than 0.80%.

Figure 8

*Post Hoc G*Power Analysis*



Note. This figure demonstrates a post hoc test performed after the completion of the study. The sample size was 58 participants. This yielded a 30% response rate. The overall statistical power of the sample size is 0.99 %.

Participants

Fifty-eight participants were AT educators in professional AT Master's degree programs with a program status of 'good standing' or 'degree change pending' and are involved in the planning and/or delivery of IPE. This yielded a 33% response rate from the 163 programs in "good standing" and the 25 programs in "degree change pending" programs that were available at the time of recruitment. As mentioned earlier, an a-priori required a minimum sample size of 42 participants. Since we exceeded the minimum number required, we had enough participants to reach statistical significance (DeLuca, 2018a; DeLuca 2018b). Three participants were terminated from the study for incomplete surveys.

Phase 1 - Quantitative Results

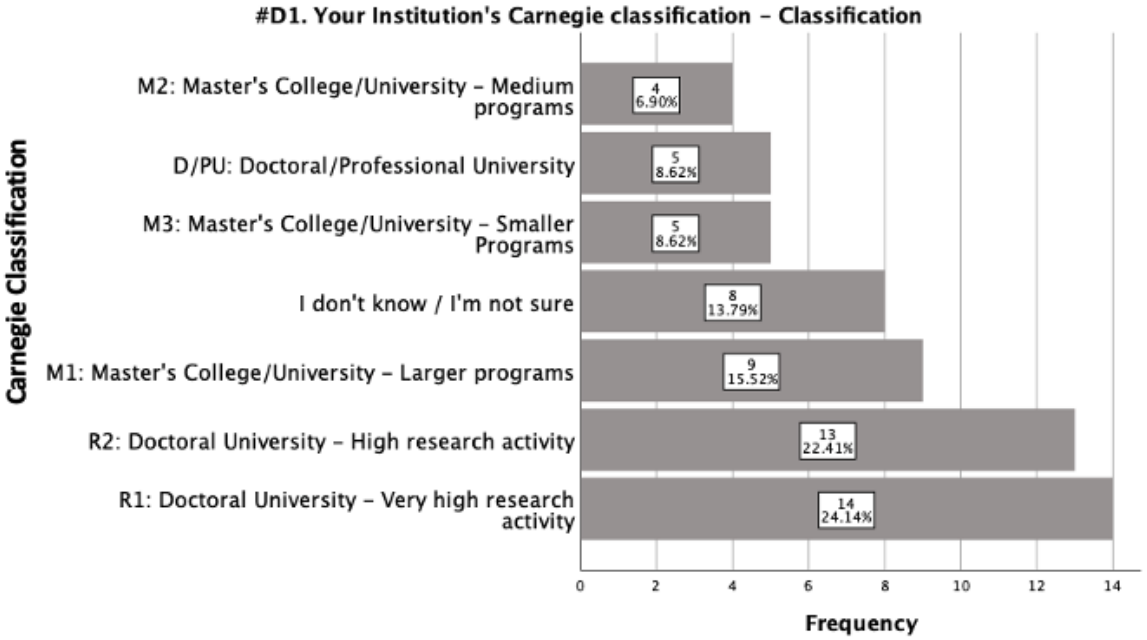
Demographics

Demographic information was primarily analyzed using counts, frequencies, and percentages. The following descriptive figures and charts were used to illustrate the characteristics of the population frequencies in detail. Participant's institution's Carnegie classification were from the six possible classifications including an "I don't know/I'm not sure" option (Figure 9). Participants then identified their NATA district which is geographically segmented into ten districts from the USA (Figure 10). Participants reported their location of their institution's state with the top 2 participating states each reported 5 (8.62%) participants from Texas and California; Idaho, Pennsylvania, and Ohio each reported 4 (6.90%); Iowa, Indiana, Virginia, Utah, and New Jersey reported 3 (5.17%) participants, Michigan, Maryland,

Maine, Illinois, West Virginia, Washington, Tennessee, Connecticut, South Dakota, Oregon, and New Hampshire each report 1(1.72%) participant.

Figure 9

Participant's Institution's Carnegie Classification

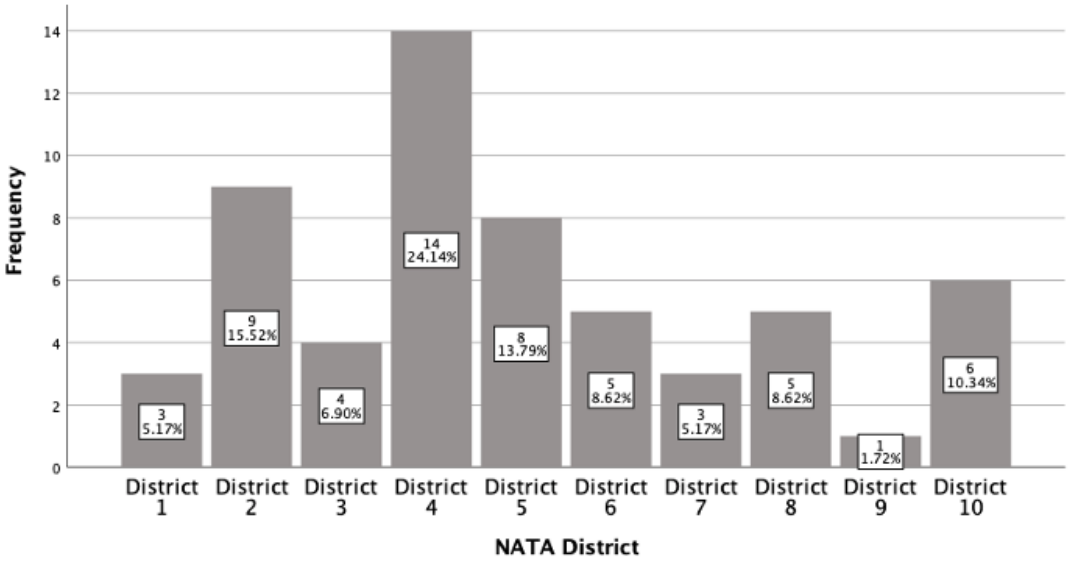


Note. This figure demonstrates the participant's institution's Carnegie classification. The bar graph shows the frequency and percentage for each Carnegie classification.

Participants indicated the number of students enrolled in the participants ATP from a predetermined range of students that closely reflected their current ATP numbers (Figure 11). Participants reported their faculty rank (Figure 12) and the current position(s) they held (Figure 13). Participants then selected a predetermined range of years of professional practice experience with 51 (87.93%) reporting "greater than 3 years", 5 (8.62%) reporting "1-3 years", and 2 (3.45%) reporting less than 1 year.

Figure 10

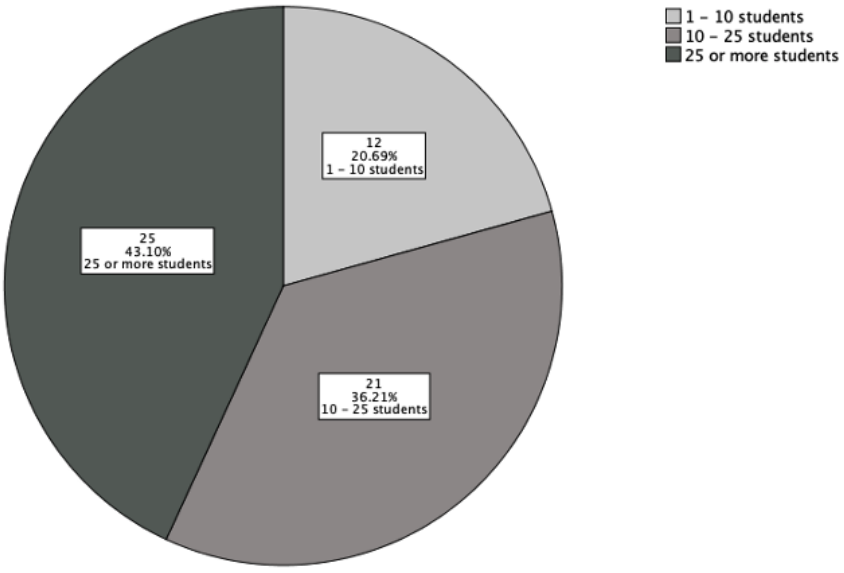
Participant's NATA District



Note. This figure demonstrates the participant's NATA district. The bar graph shows the frequency and percentage for each district.

Figure 11

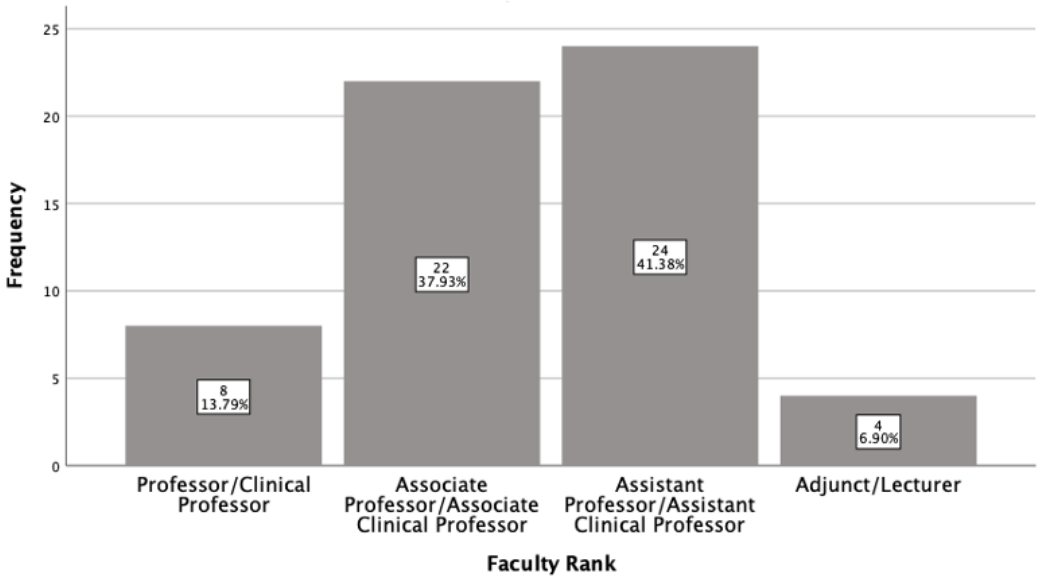
Participant's Selection from a Predetermined Range of AT Students Enrolled in their AT program



Note. This figure demonstrates a participant's selected number from a predetermined range of students that closely reflects their ATP numbers. The pie chart shows the frequency and percentage for each category.

Figure 12

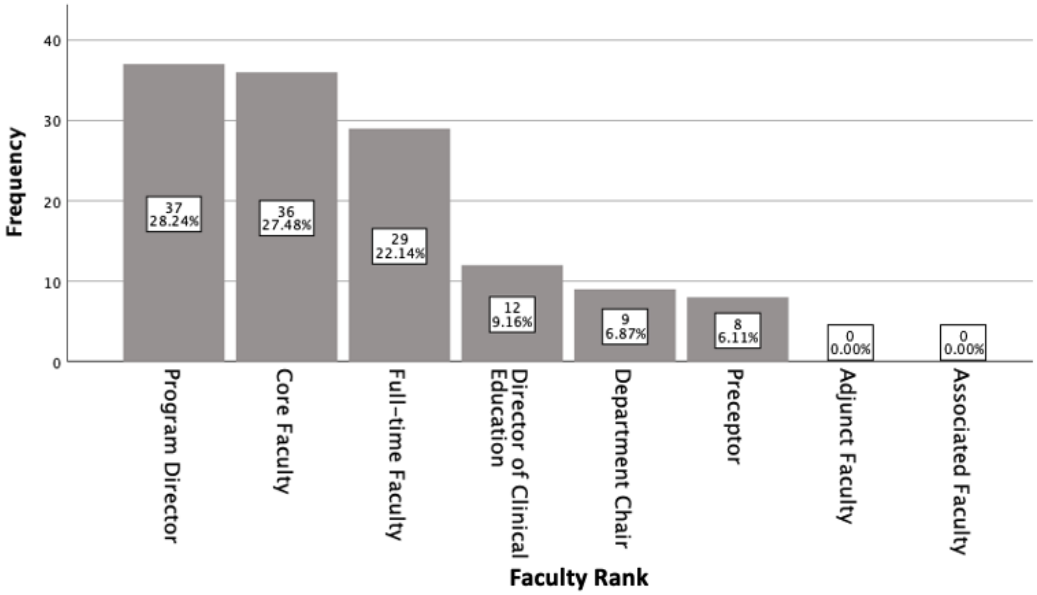
Participant's Faculty Rank



Note. This figure demonstrates the participant's faculty rank. The bar graph shows the frequency and percentage for each category.

Figure 13

Participant's Current Position(s) Held



Note. This figure demonstrates the participant's current position(s) held . Participants were able to select all positions that applied. The bar graph shows the frequency and percentage for each category.

Forty-eight (82.76%) of participants completed any formal training in IPE (conference, workshops, etc.) while 10 (17.24%) reported not having completed any formal training. Participants were allowed to expand on their formal training in IPE. Responses were placed into codes, categories, and themes as found in Table 1.

Table 1

Open-ended Explanations for Formal Training in IPE

Codes	Categories	Themes
• Workshops • Conferences • Degree coursework • CEUs • Professional Development courses • Simulations • IPE committee/taskforce participation • CAATE, NATA, ATEC conferences/education • IPE Guest speaker • Professional presentations • IPE – training • IPE doctoral training • Online education • None	• Structured learning & unstructured learning • Autonomous learning & dependent learning - andragogy vs pedagogy or combination • Time investment – multiple exposures • Professional investment • Memberships or positions of leadership • Learn by experience	• IPE **training** can exist in **several modes** • Learning can be a **structured** (formal program) or an **unstructured** experience (learn by-doing) or a **combination** of both. • IPE training **requires an investment and commitment** in one's time (coursework, workshops, committees) and is **not a 'one and done'** experience. • 'Learning' IPE must be **sought out** by the individual
In-Vivo Codes		
• "IPE training in doctoral program." –P31 • "No formal training, just jumped into university's IPE events." -P7 • "No formal, based on experience as practicing clinician." –P30 • "Attended seminars and workshops at NATA and taken online CEUs in regard to IPE. Involved in school initiatives for student and faculty collaboration." –P13 • "IPEC conference participant, Co-founder/Co-chair IPE Committee, research in the area." –P27 • "… went through a semester-long faculty development program in IPE." • "Workshops at professional conferences, on-campus meetings and basic training with an IPE workgroup." –P35 • "Organized, facilitated, and participated in 10+ IPE workshops over the past 5 years" –P58 • "Doctorate dissertation and research interest in IPE, National AT professional organization subcommittee, participated in writing IPE white paper, member of IP faculty advisory board, promotes student IP learning and student collaboration." –P28 • "Minimal" –P51 • "None. Just told to do it." –P14		

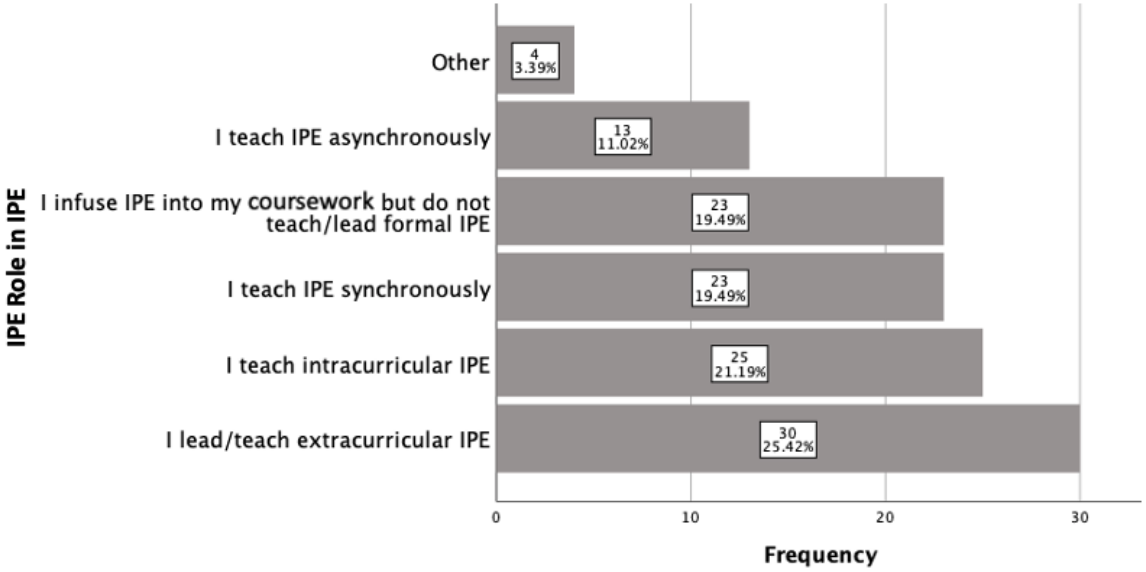
Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Participants then selected the number of years of teaching experience from a predetermined range of years. Fifty-six (96.55%) of educators had greater than 3 years of teaching experience, 1 (1.72%) had "1-3 years" of teaching experience, and 1 (1.72%) had "less than 1 year of teaching experience. Participants then selected the way(s) in which they have taught and/or infused IPE (Figure 14). Participants were allowed to expand and explain their choices if they chose "other" as a selection. These responses were placed into codes, categories, and themes as found in (Table 2).

Participants also provided the number of years of teaching/infusing IPE based on a predetermined range of years (Figure 15). Participants also selected the estimated range of hours of teaching/infusing IPE per academic year based on a predetermined range (Figure 16). Participants also ranked the frequency in which they collaborate with the listed healthcare professionals provided from "Always" (Figure 17), "Most of the time" (Figure 18), "About half the time" (Figure 19), "Sometimes" (Figure 20), and "Never" (Figure 21). Participants were also provided an opportunity to list other profession(s) that may have not been captured from the previous list of healthcare professions. Participants were then instructed to rank how often they collaborated with their provided healthcare profession(s) Table 3.

Figure 14

Participant's Role as an AT Educator Involving IPE



Note. This figure demonstrates a participant's role as an educator involving IPE. The bar graph shows the frequency and percentage for each category.

Table 2

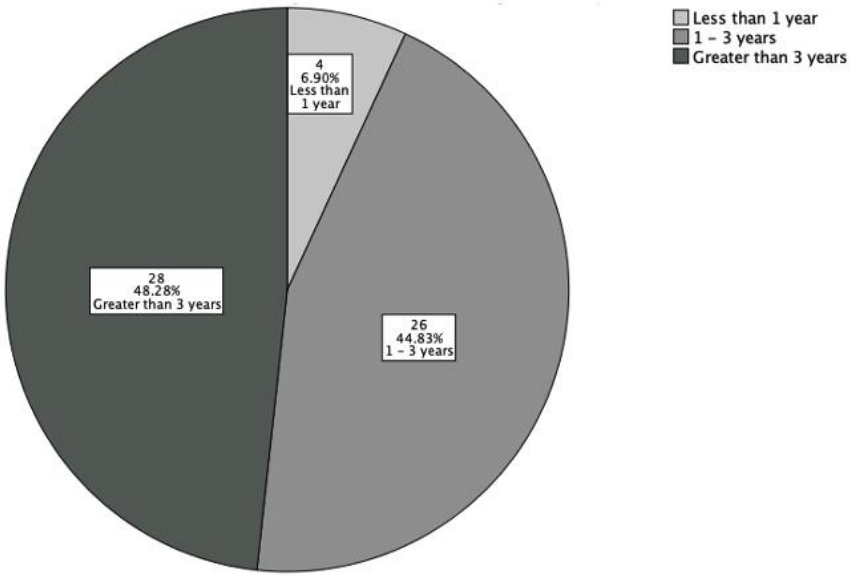
Open-ended Responses for "Other" in "Your Role as an Educator"

Codes	Categories	Themes
• Go outside (our school) to participate in IPE, teach/lead but with other programs • Incorporate into clinical • Serve on IPE committee • Lead/teach IPE certain majors	• IPE interaction takes place outside of program • IPE led/teaching events are limited to certain majors • IPE is incorporated into clinical	• IPE involves **teaching outside the program** and include certain majors • IPE are incorporated and **taught within clinical** experiences
In-Vivo Codes		
• "I lead/teach extracurricular IPE but not all students within the school participate in; only specific majors." –P50 • "I incorporate IPE experiences into the clinical education of students and work with the physician assistant program to implement IPE experiences" –P11		

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Figure 15

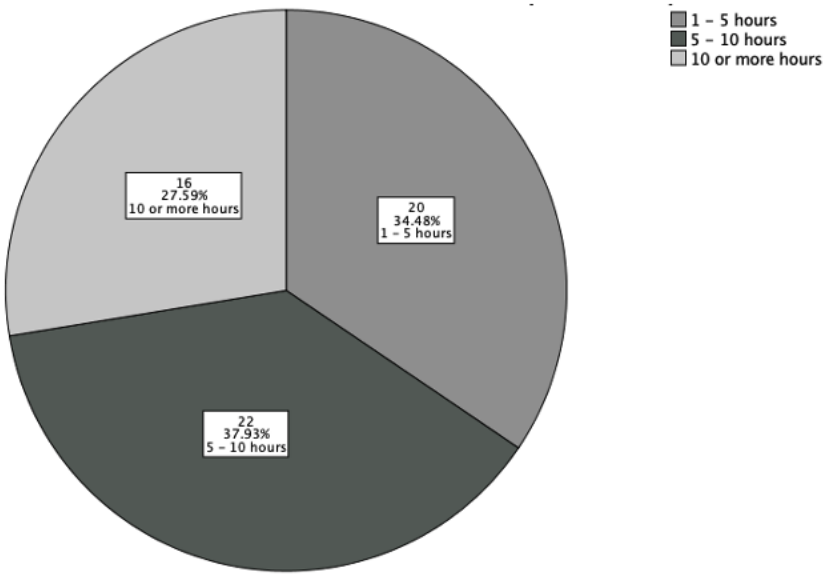
Participant's Selection from a Predetermined Range of Years of Teaching/Infusing IPE into Coursework



Note. This figure demonstrates a participant's selection from a predetermined range of years of teaching/infusing IPE. The pie chart shows the frequency and percentage for each category.

Figure 16

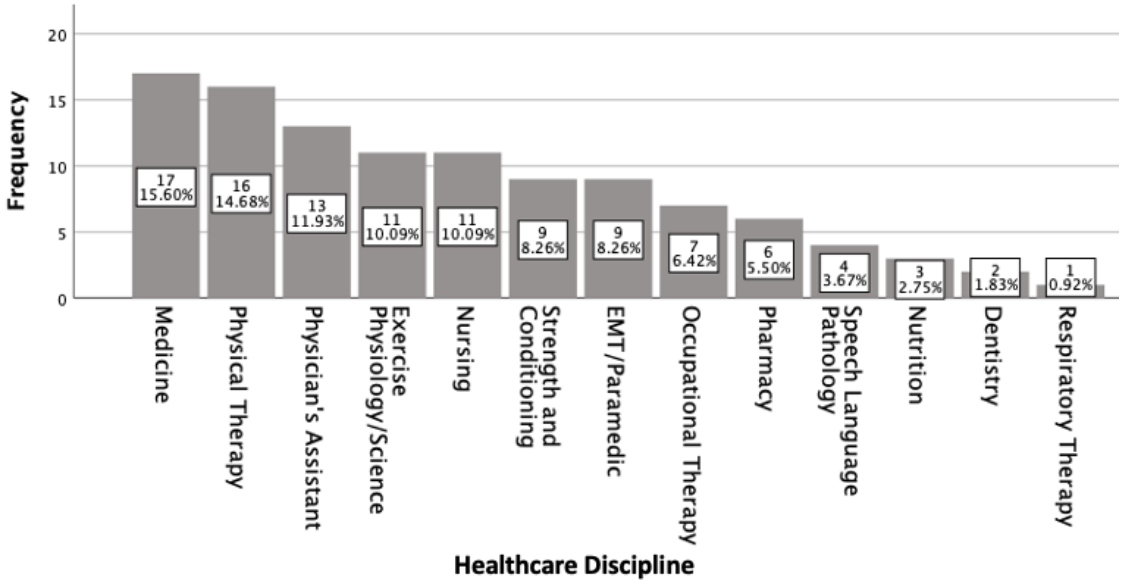
Participant's Selection of an Estimated Range of Predetermined Hours of Teaching/Infusing IPE per Academic Year



Note. This figure demonstrates a participant's selection of an estimated range of predetermined hours of IPE instruction per academic year. The pie chart shows the frequency and percentage for each category.

Figure 17

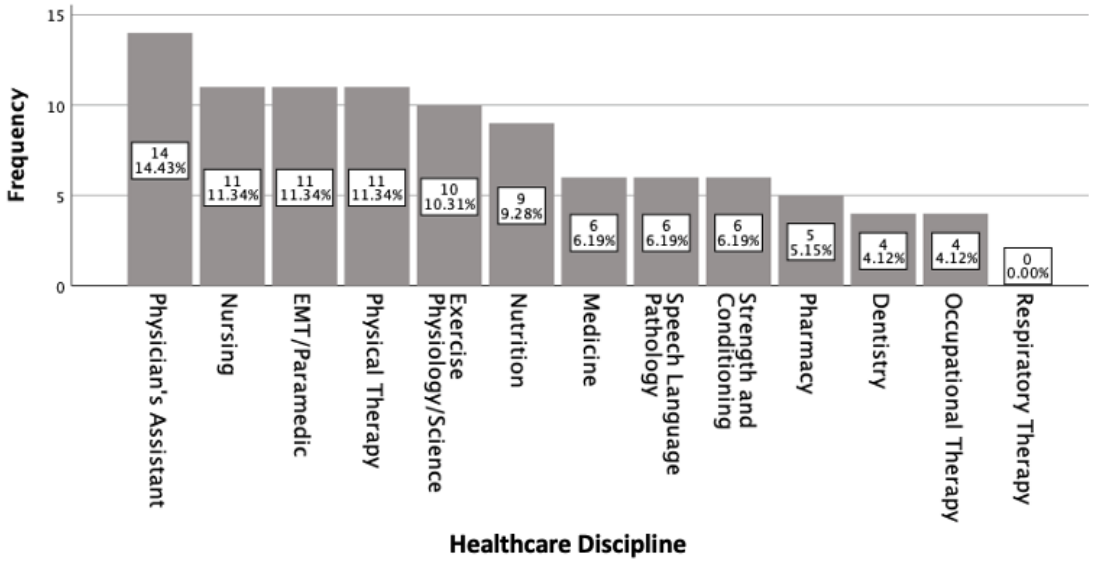
Participant's "Always" Frequency of Collaboration Rating for each Healthcare Discipline



Note. This figure demonstrates a participant's frequency of collaboration rating for each healthcare discipline. The bar graph shows the frequency and percentage for each discipline.

Figure 18

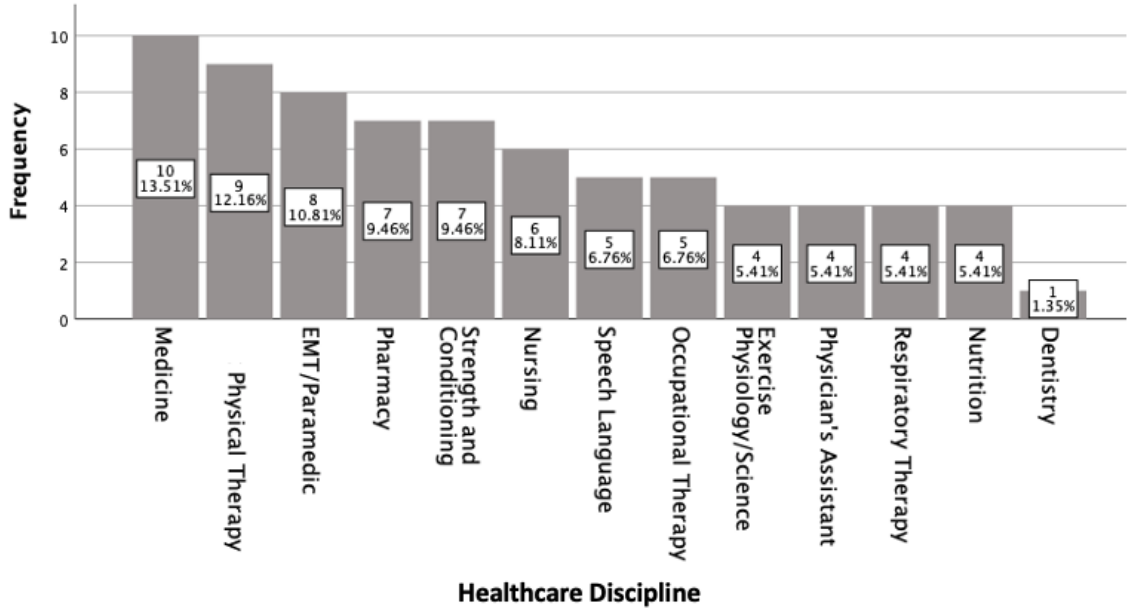
Participant's "Most of the time" Frequency of Collaboration Rating for each Healthcare Discipline



Note. This figure demonstrates a participant's frequency of collaboration rating for each healthcare discipline. The bar graph shows the frequency and percentage for each discipline.

Figure 19

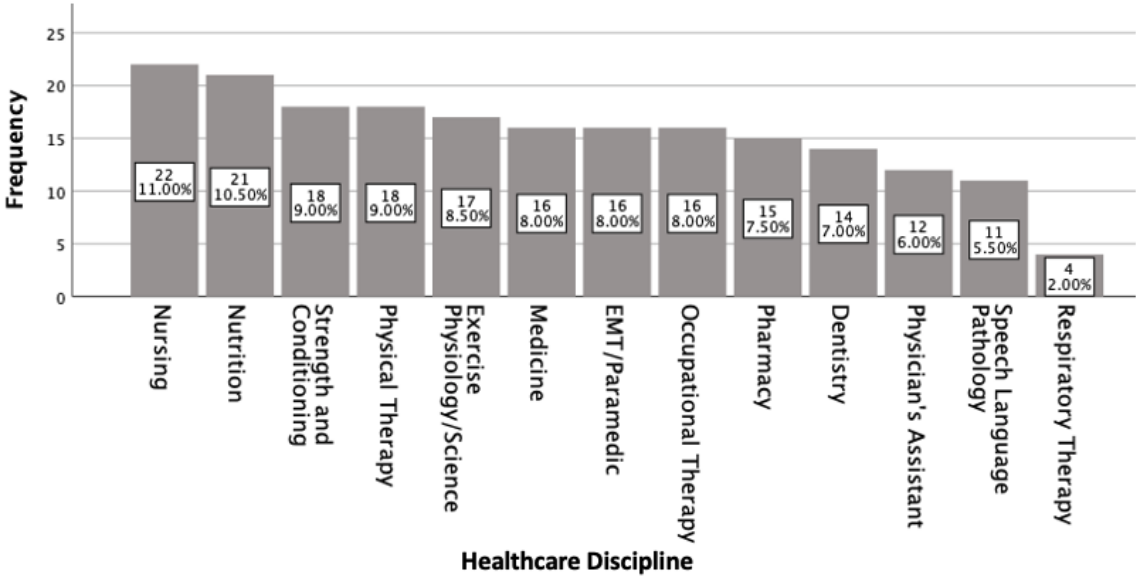
Participant's "About half of the time" Frequency of Collaboration Rating for each Healthcare Discipline



Note. This figure demonstrates a participant's frequency of collaboration rating for each healthcare discipline. The bar graph shows the frequency and percentage for each discipline.

Figure 20

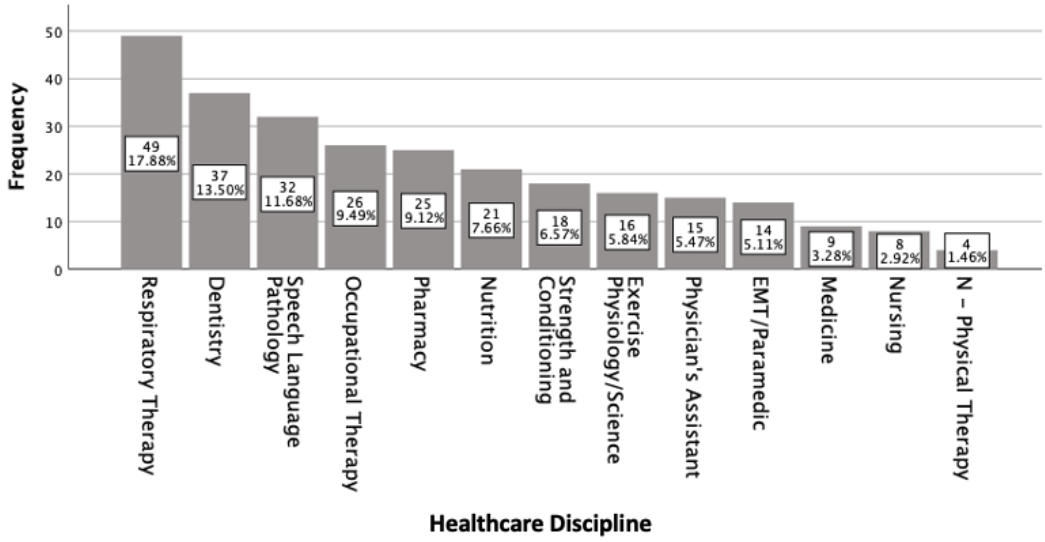
Participant's "Sometimes" Frequency of Collaboration Rating for each Healthcare Discipline



Note. This figure demonstrates a participant's frequency of collaboration rating for each healthcare discipline. The bar graph shows the frequency and percentage for each discipline.

Figure 21

Participant's "Never" Frequency of Collaboration Rating for each Healthcare Discipline



Note. This figure demonstrates a participant's frequency of collaboration rating for each healthcare discipline. The bar graph shows the frequency and percentage for each discipline.

Table 3

Frequency of Collaboration with "Other" Professions

Rated frequency of collaboration	Count	Percentage	Profession
Always	3	0.05	**Counseling / Psychology / Mental Health Professionals / Marriage and Family Therapy**
	2	0.03	Social Work
	1	0.01	Medical Interpretation
	1	0.01	Psychiatric mental health nurse practitioner
Most of the time	5	0.09	**Public Health**
	2	0.03	Counseling/ Psychology
	2	0.03	Recreation Therapy
	1	0.01	Social work
	1	0.01	Physical Therapy Aides
	1	0.01	911 Dispatcher
	1	0.01	Music Therapy
	1	0.01	Radiology
About half the time	2	0.02	**Public Health**
	1	0.01	Psychologist/Counselor
	1	0.01	Occupational Therapy Assistants
Sometimes	3	0.05	**Social Work**
	3	0.05	**Counseling / Psychology services**
	2	0.03	Sport Psychology
	2	0.03	Massage Therapy
	1	0.01	Physical Therapy Aides
	1	0.01	Chinese Medicine (Naturopath & Acupuncture)
	1	0.01	Chiropractic
	1	0.01	Music Therapy
	1	0.01	Radiology
Never	0	0	(No Recorded Responses)

Note. This table demonstrates the count and percentage for the professions listed as 'other' and their rated frequency of collaboration.

Central Research Question 1. What are AT educators' perceptions associated with infusing IPE into AT curriculum?

PINCOM-Q Mean Scores. The PINCOM-Q is a self-reported instrument that measures subjective perceptions of collaboration. Responses to the PINCOM-Q used a 7-point Likert scale with the lowest score ranked at a 1 – strongly agree, and the highest score, 7 – strongly disagree. Lower scores indicate an agreeable perception, whereas higher score indicate a disagreeable perception. A cumulative low score is associated with an agreeable perception of CP in IPE. Participants were instructed to answer the PINCOM-Q according to their perception associated with collaborative teamwork while infusing IPE. Table 2 provides the mean scores for the PINCOM-Q. AT educators' perceptions of interprofessional collaboration while infusing IPE, demonstrated an agreeable perception, with a mean score of 2.5549. Following consultation with the creator of the PINCOM tool, Dr. Atle Odegard, the PINCOM is meant to explore professionals' perceptions of interprofessional work, therefore, it is not developed as a scale with norms, but is considered, and characterized to be used with structural professional judgement (A.O., personal communication, March 25, 2021). Thus, our approach is to the bridge the gap between information obtained from the PINCOM-Q statements, and other measures obtained from this study, such as the demographics, to help make associations.

Table 4

Mean score for PINCOM-Q

	N	Minimum	Maximum	Mean	Std. Deviation
CompositePINCOM	58	1.27	3.64	2.5549	.52726

Note. This table demonstrates the mean composite score for the PINCOM-Q. The PINCOM-Q mean composite score of 2.5549 has been circled. This indicates an overall positive, and agreeable perception towards interprofessional collaboration.

Sub-Research Questions 11 - 15

Hypothesis Testing PINCOM-Q and Demographic Associations. Sub-research questions are discussed next, to understand the associations made between the demographic variables and the PINCOM-Q mean score. Sub-research questions and associated hypothesis were analyzed using Chi-square analysis to determine the likelihood of agreement with the statements presented in the PINCOM-Q. Chi-square analysis can also be interpreted as the difference in the level of agreement with each of the PINCOM-Q statements, based on the demographic a participant selected. Table 4 demonstrates a cross tabulation of the Chi-square analysis to determine the association between each PINCOM-Q statements and demographic questions 7, 8, 9, 11, and 12 highlighting and each of their associated p-value. If a p-value was less that 0.05 there was significance and was circled in red. The null hypotheses were the presented with the following sub-research questions. Significance was found with PINCOM-Q statements Q1, Q2, Q3, Q6, Q7, Q8, Q9, Q10, and Q11 in association with certain demographics. Table 5 demonstrates the association between the sub-research questions, demographic questions 7, 8, 9, 11 and 12, hypotheses, Chi-square p-values of the PINCOM-Q statements, and acceptation, or rejection of the null hypotheses. If a p-value was less that 0.05 there was significance. Significance was found with all sub-research questions. Therefore, the null hypothesis was rejected for all sub-research questions 11, 12, 13, 14, and 15.

Table 5

Chi-Square Cross Tabulation of PINCOM-Q and Demographic Questions 7, 8, 9, 11, 12 Hypothesis Testing

		Demographics				
		D7 - Years of Professional Practice Experience	D8 - Received Formal Training in IPE	D9 - Years of Teaching Experience	D11 - Years of Teaching Formal IPE	D12 - Hours of IPE Instruction per Academic Year
PINCOM-Questions	Q1. I find that I am appreciated by other members of the working committee I participate in.	0.614	0.0001*	0.001*	0.209	0.052
	Q2. I have almost never found that the other working committee members do not understand what I am trying to explain or report.	0.856	0.286	0.164	0.209	0.578
	Q3. I find that the other members in the working committee I participate in are willing to listen to me if I have problems.	0.982	0.122	0.029*	0.024*	0.597
	Q4. It is important that the leader of the working committee arranges the work in ways that help the committee reach its goal.	0.901	0.147	0.676	0.115	0.201
	Q5. The personal engagement of the group participants is often of great importance for collaboration in the working committee.	0.994	0.151	0.986	0.743	0.202
	Q6. The participants in the working committee are good at exchanging information with each other about how they work.	0.117	0.047*	0.057	0.845	0.047*
	Q7. Some professionals provide the assumptions for the working committee.	0.0001*	0.047*	0.001*	0.161	0.426
	Q8. The viewpoints of some professionals dominate the working committee meetings.	0.0001*	0.303	0.508	0.426	0.219
	Q9. I experience personal growth when I participate in the working committee.	0.136	0.010*	0.935	0.102	0.527
	Q10. I get to use my creativity and imagination when I participate in the working committee.	0.951	0.002*	0.336	0.0001*	0.056
	Q11. I always have clear goals when I participate in the working committee.	0.824	0.086	0.765	0.058	0.035*

Note. This table is a cross-tabulation of the Chi-square analysis to determine the association between each of the PINCOM-Q statements (Strype et al. 2014) and demographic questions 7, 8, 9, 11, and 12. If a p value is less than .05, there is significance.

Table 6

Hypothesis Testing Summary

Research Question	Demo-graphic	Hypothesis	Assessment	PINCOM-Q & P-Value (Chi-Square)	Reject the H0 or Fail to Reject H0
RQ11. What is the association between Athletic Training program educators' **years of professional practice experience** and perceptions of IPCP in IPE?	D7	H0. AT educators' years of professional practice experience will not influence perception of CP in IPE.	PINCOM-Q	Q7. = 0.0001 Q8. = 0.0001	Reject the Null Hypothesis
RQ12. What is the association between Athletic Training program educators' **formal training in IPE** and perceptions of IPCP in IPE?	D8	H0. AT educators' formal training in IPE will not influence perception of CP in IPE.		Q1. = 0.0001 Q6. = 0.047 Q7. = 0.047 Q9. = 0.010 Q10. = 0.002	Reject the Null Hypothesis
RQ13. What is the association between Athletic Training program educators' **years of teaching experience** and perceptions of IPCP in IPE?	D9	H0. AT educators' years of teaching experience will not influence perception of CP in IPE.		Q1. = 0.001 Q3. = 0.029 Q7. = 0.001	Reject the Null Hypothesis
RQ14. What is the association between Athletic Training program educators' **years of teaching formal IPE** and perceptions of IPCP in IPE?	D11	H0. AT educators' years of teaching IPE will not influence perception of CP in IPE.		Q3. = 0.024 Q10. = 0.0001	Reject the Null Hypothesis
RQ15. What is the association between Athletic Training program educators' **number of hours of IPE instruction per academic year** and perceptions of IPCP in IPE?	D12	H0. AT educators' number of hours of IPE instruction will not influence perception of CP in IPE.		Q6. = 0.047 Q11. = 0.035	Reject the Null Hypothesis

Note. This table demonstrates the association between the sub-research questions, demographic questions 7, 8, 9, 11 and 12, the null hypotheses, Chi-square p-values of the PINCOM-Q statements, and acceptation, or rejection of the null hypotheses. If a p value was less than .05, there is significance. Therefore, all null hypotheses were rejected.

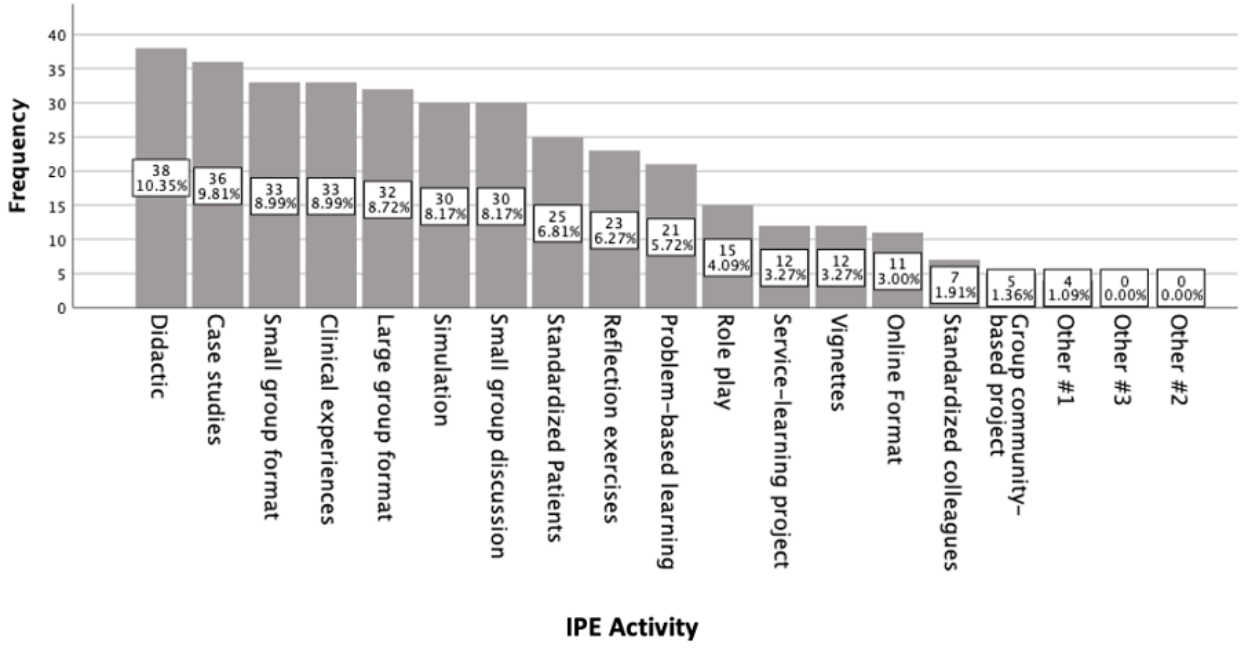
Quantitative and Qualitative Results

Central Research Question 2. What are AT educators using to infuse IPE into AT curriculum?

IPE Learning Inventory in Athletic Training. Participants were instructed to select the activities and professions from the inventory that are involved with their IPE programming (Figure 22). Participants were allowed to explain their choices if they chose "other" as depicted in Table 6, "online format" as depicted in Table 7, and/or to further explain their selections from the provided list of IPE activities Table 8. Responses were placed into codes, categories, and themes as found in Table 6, Table 7, and Table 8.

Figure 22

IPE Strategies Used in ATPs



Note. This figure demonstrates the IPE strategies used in ATPs. The bar graph shows the frequency and percentage for each category.

Table 7

Open-Ended Responses for "Other" in "IPE Learning Activity Inventory in AT"

Codes	Categories	Themes
• Live event • Different professionals from campus and community • Comprehension of collaboration and its importance • Relevant topics • Engagement • Interactions	• IPE activities are an opportunity to invite different professions from other disciplines to teach students from multiple disciplines • These activities allow students to collaborate to practice hands-on skills	• IPE activities pose an **opportunity for different professionals** to come together to **share their skillsets and teach their role** in the healthcare team • IPE events **focus on relevant topics and skill-building** activities that **promote** student and facilitator **interaction,** collaboration, and engagement.
In-Vivo Codes		
• "In-services with professionals in other fields (public health, general medicine/PCP) on relevant topics so students understand the importance of professional collaboration and education." –P52 • "In the clinical experience our students engage with other health care professions to see and treat patients. We also have a variety of speakers coming to classes so that students can interact with other providers. These are usually lab-based skills." –P53		

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Table 8

Open-Ended Responses for "Online Format" in "IPE Learning Activity Inventory in AT"

Codes	Categories	Themes
• Shifted format • (Zoom) virtual meetings for synchronous format • Online only for Covid • Unsure • Change in sequence • Online→ hybrid→ virtual (was in-person) • Online prior to in-person • Online asynchronous, self-directed, prior to synchronous • Online education (modules/discussions/workshops) act as an intro to IPE	• Online format primarily used to accommodate COVID restrictions • Many modes of online delivery used • Online can be synchronous or asynchronous • Online is typically introduced early in IPE programming	• Online modes of learning have been used to **accommodate COVID restrictions** and appears to have been further extended into temporarily **replacing in-person events**. • There is an **uncertainty** if online programming will continue past COVID. • Online learning uses an **asynchronous and synchronous online format or combination** of both. • Established **prior to COVID**, **online learning was being used as an introductory mode of learning IPE**, prior to progressing in the IPE curriculum. • Online **asynchronous** modes include modules, (blackboard) discussions, individual &/or group assignments. • Online **synchronous** include virtual meetings, discussions, collaborative activities such as case studies, telemedicine, & simulations.
In-Vivo Codes		
• "Due to Covid-19 we shifted our large IP forum with over 900 students into an online format with 130 groups of 7 students." -P1 • "Online due to COVID-19, not sure if that will continue post pandemic." -P6		

• "All students complete asynchronous on-line modules prior to the in-person event; on-line modules provide overview of IPE and IPP and roles and responsibilities of the various professions involved; all students submit reflection on-line." - P26 • "Each semester, students from across programs participate in an asynchronous module. Students stay within the same assigned section throughout the program and work together to collaborate on varied activities that is submitted. Faculty members assigned to the section provide feedback and oversight of the module and sections progress." –P28

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Table 9

Open-Ended Explanations for Student Selections in the "IPE Learning Activity Inventory in AT"

Codes	Categories	Themes
• Various professions/disciplines • Intentional curriculum design • Numerous modes of IPE • Didactic/lab setting • SP • Online format • Large/small group format/activity • Semester IPE course • Multiple IPE sessions • IPE topic per session (IPEC CC) • IPE in clinical rotation • Joint projects • IP clinical rotation non-orthopedic focus/general medical w/ other HCPs • Clinical with non-traditional pt. population • Progressive curriculum design • IPE committee/faculty/panel • Debriefing/reflection • Online module/prep (prior to IPE activity) • Case studies • IPE Didactic • Guest HCPs to teach about their field • Asynchronous/synchronous events • On-line/in-person • Faculty facilitators • Multiple IPE exposures in curriculum • Varied methods • Vignettes • Simulation • IPE activity vary on goals of IPE • Pre/post survey outcomes	• Small & large group formats • IP teaching and learning • Didactic teaching • Simulation & SPs • Multiple disciplines participate in large or small group format • Semester long courses • IPEC CC lead topic/focus of activity • IPE occurs in clinical rotation in non-traditional settings or with non-AT preceptors • Non-traditional clinical is non-orthopedic, hospital based or emergency/ambulatory care • IPE is intentionally designed in AT curriculum • Curriculum is planned as a progression • Debriefing/reflection/survey occur at end of activities • Online prep/modules can prior to in-person • Asynchronous/synchronous events	**IPE and interdisciplinary exposure occurs during clinical** • AT students are placed in immersion/clinical experiences that are non-traditional in nature (i.e. non-orthopedic, in-hospital setting) and include multiple healthcare disciplines such as medicine-physician's, nurses or emergency care professionals. **IPE planning & instruction** • IPE activities are **planned by interdisciplinary faculty** on the IPE committee • IPE activities are **taught in an interdisciplinary manner** by individual(s) from a different HC discipline or by multiple instructors from different disciplines. **IPE programming intentional** • IPE program activities appear to **follow a progression** from a large group format to small group format activity throughout the student's degree progression • IPE activity topics and goals vary on intent and are typically **aligned with the IPEC CC's**. • IPE activities involve **large and small group formats.** • Common IPE activities included involve **intra-curricular or extracurricular or blend of both.** • IPE programming appear to progress starting with didactic learning &/or online-format/module learning, semester

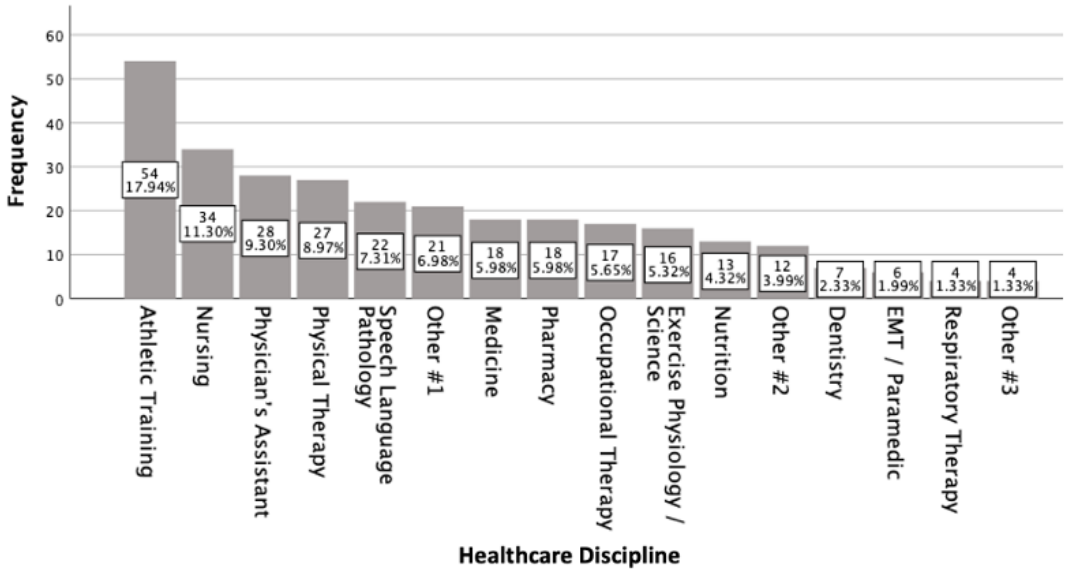
• Role-play simulation • Non-AT preceptors • IPEC CC guide IPE		long interdisciplinary courses, guest/speaker series, interdisciplinary projects, case studies/vignettes, simulations, standardized patients. • **Debriefing and reflection** (discussions, peer-to-peer, faculty facilitated, survey focused) appear to be included in IPE programming and occur at the end of an activity.
In-Vivo Codes		
• "Students are placed in rotations where they may interact with healthcare professional's other than ATs (e.g., physicians, nurses, MA)." -P29 • "We use didactic IPE coursework to allow health care professionals to teach their scopes of practice." -P23 • "Activities may vary based on the goals of the IPE activity. Typically, an IPE activity will have a central theme, some form of a case/ and or actual patient vignettes that participants discuss in small interprofessional groups, and a debrief and reflection exercise. In some cases, simulation is used to enact particular skills that can be done on a model or on a standardized patient as well." –P33 • "Students and other professionals engage in large format experiences, debrief in large and small group settings, do personal reflection and address scenarios/situations they would have changed their care." –P31 • "Within each course, there are discussions/teaching on utilizing other professions as part of a holistic approach to patient care and outcomes. Additionally, we have our students work with preceptors outside of the athletic training profession to experience their role in a team approach to patient care and outcomes." –P52 • "We organized a large event that contains both asynchronous and synchronous events, on-line and in-person; all students complete asynchronous on-line modules prior to the in person event; on-line modules provide overview of IPE and IPP and roles and responsibilities of the various professions involved; the in-person event has a brief overview of IPE and the event; small groups were formed representing various professions; we have a simulated patient (theatre student we trained) and a faculty member with each group to facilitate if needed; the students work though the case and then report back to the group. there is an immediate debrief with faculty and SP." P-26 • "Didactic - IPE course (about 40 students) from variety of HCP…; using IPEC competencies discuss topics such as health disparity, health inequity, bias (implicit and explicit), professional ethics and responsibilities, and complete a case presentation based on a "paper patient" Course employs small group and large group activities, reflection activities in discussion forum and face-to-face activities, and cases to discuss and model how to implement IPEC competencies and address ethical concerns. Problem based learning - Students are provided some details about a patient and students are asked to flesh out this patient based on their profession. The interprofessional groups work together to address patient needs and care using the IPEC competencies and address an ethical conflict present within the case. Students present this case to their peers and a faculty mentor. Case Interprofessional Case Conference Series - Student's self select to participate in large and small groups in monthly Case presentations based on purposefully identified IPEC competencies. Presenters use a variety of learning approaches synch as case studies, role play, and vignettes." -P57		

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

The next question in the inventory instructed participants to select the schools/departments/programs from which students participate in (Figure 23). Participants were allowed to explain their choices if they chose "other" as depicted in Table 9 and/or to further explain their selections from the provided list of schools/departments/programs as depicted in Table 10. Responses for Table 9 and Table 10 were placed into codes, categories, and themes.

Figure 23

Student Disciplines Involved in IPE Activities



Note. This figure demonstrates the disciplines from which the students participate in IPE . The bar graph shows the frequency and percentage for each category.

Table 10

"Other" Identified Student Professions

	Count	Percentage	Profession
Other #1	6	0.28	Social Work
	3	0.14	Public Health
	3	0.14	Recreational Therapy
	1	0.04	Health Administration
	1	0.04	Dental Hygeine
	1	0.04	Pre-PT
	1	0.04	Nurse Practioners
	1	0.04	Music Therapy

	Count	Percentage	Profession
Other #2	6	0.5	Psychology/Counseling/ Marriage & Family Therapy
	3	0.25	Public Health
	1	0.08	Music Therapy
	1	0.08	Audiology

	Count	Percentage	Profession
Other #3	2	0.5	Psychology/Counseling
	1	0.25	Public Health
	1	0.25	Social Work

Note. This table demonstrates the count and percentage for the "other'" identified student professions listed. Other #1 was selected by 21 participants or 6.98%. Other #2 was selected by 12 participants or 3.99%. Other #3 was selected by 4 participants or 1.33%.

Table 11

Open-Ended Explanations for Students in Comments in the "IPE Learning Activity Inventory in AT"

Codes	Categories	Themes
• multi-professional education • engage in a variety of experiences • programs located in same college • students placed in groups with other professions • schedule events • programs on and off campus • multiple schools and their disciplines • participate in multiple full semesters of IPE curriculum • small group activities culminate into SP or PBL • a number of specified IPE experiences per year, IP collaboration for PP physicals • IP collaboration community clinic • selected relationships • students attend other programs coursework to fulfill IPE • students participate in course sequence • Open invitation to university community and surrounding universities to participate in IPE activities/program • Majority graduate level students • Dual degree • undergrad • partnership with local EMS • participation is incidental • participants don't always demonstrate equal investment • selected students participate • role-play once a year • shared course/cross-course • explored options for collaboration • no success • students self-select	• Student participation is within the school/university and can include other universities or local health organizations • Students are intentionally placed, or students can self-select • Students range degree levels • Programs can occur on or off campus • Students can participate in intracurricular or extracurricular activities • Students' activities lead to a progression of activities • Some working relationship attempts are unsuccessful	• Student **participation** can occur **within and outside** the immediate o**rganization** • Students are **intentionally placed** into working relationships • **Student**s may have the option to **self-select** into IPE activities • Students are **primarily graduate**, but can range in undergraduate health majors • Students are often taught **soft skills** in IPE then progress to **hard skills** that are discipline specific • Some attempts at establishing **relationships are unsuccessful** • Some disciplines are **not invested** in engagement

In-Vivo Codes

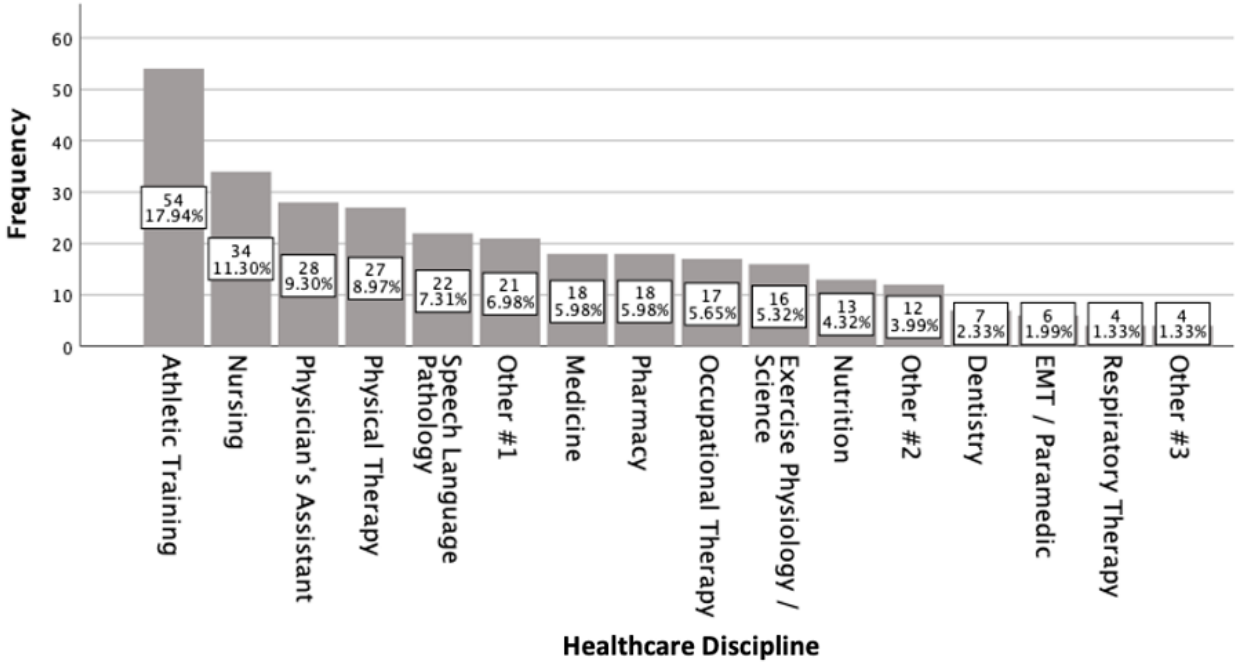
- "All Health Profession programs within the University are invited to participate in IPE events and include students from the school of nursing and school of health and medical science as well students from a local University who requested to join the IP activities offered. Most students are enrolled in graduate level programs that includes dual degree students (undergrad seniors) as well as undergraduate nursing students." –P28
- "All students from selected schools/departments participate in the IPE course. Students can self-select if they want to participate in the ICC (interprofessional case conferences)." –P57
- "All schools in the College of medicine, pharmacy, nursing, dentistry, and public health participate in 3 full semesters of IPE curriculum with small group activities and then culminates into a standardized patient or problem-based learning activity." –P16
- *"We have great partnerships with local EMS and our School of Nursing. Our medical fellows that participate do so incidentally. Their involvement is important to have but we don't always have an equal investment from the participants in the building of the IPE activities."* –P33
- "Our program is housed in the exercise science department with exercise physiology. We have explored options to incorporate IPE with our health professions department with little success."-P56

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Next, the inventory instructed participants to select the schools/departments/programs which faculty participate in (Figure 24). Participants were allowed to explain their choices if they chose "other" as depicted in Table 11 and/or to further explain their selections from the provided list schools/departments/programs as depicted in Table 12. Responses from Table 11 and Table 12 were placed into codes, categories, and themes.

Figure 24

Faculty Disciplines Involved in IPE Activities



Note. This figure demonstrates the disciplines from which the faculty participate in IPE . The bar graph shows the frequency and percentage for each category.

Table 12

"Other" Identified Faculty Professions

	Count	Percentage	Profession
Other #1	5	0.23	Social Work
	3	0.14	Public Health
	3	0.14	Psychology/Mental Health Counseling
	2	0.09	Recreational Therapy
	1	0.04	Health Administration
	1	0.04	Dental Hygiene
	1	0.04	Sport Management
	1	0.04	Nurse Practitioner
	1	0.04	Music Therapy

	Count	Percentage	Profession
Other #2	4	0.33	Psychology/Counseling/ Marriage & Family Therapy
	3	0.25	Public Health
	2	0.16	Social Work
	1	0.08	Music Therapy
	1	0.08	Audiology

	Count	Percentage	Profession
Other #3	3	0.75	Psychology/Counseling
	1	0.25	Social Work

Note. This table demonstrates the count and percentage for the "other'" identified faculty professions listed. Other #1 was selected by 21 participants or 6.98%. Other #2 was selected by 12 participants or 3.99%. Other #3 was selected by 4 participants or 1.33%.

Table 13

Open-Ended Explanations for Students in the "IPE Learning Activity Inventory in AT"

Codes	Categories	Themes
• Faculty requirement • All faculty same college/teaching hospital • Each program represented • Varied participation • Working to build with others • faculty representatives • Faculty facilitation • Faculty lead intracurricular and extracurricular • Faculty volunteer to participate	• Faculty are from within the institution • Faculty represent each program • Participation levels vary • Faculty seek out other disciplines • Faculty collaborate to create and facilitate IPE • Activities created are intra or extra-curricular	• Participating faculty are **directly from the institution**, in addition can be from **partnered** healthcare organizations/hospitals • Faculty are **represented** from **each program** • Faculty **participation** can be a **requirement, an expectation or completely voluntary** or a **combination** of the prior • Faculty **responsibilities range** from creating IPE to facilitating IPE or a combination of both • Faculty are **involved in intracurricular** activities or **extracurricular** activities
In-Vivo Codes		
• "Faculty participate in all things IPE. it is a requirement for all IPE events that faculty facilitate. At minimum 1 faculty per 7 students from that program." –P1 • "Each program has a faculty rep- levels of participation vary." –P6 • "1-2 faculty representatives from each school/program are asked to participate in the IPE Steering Committee for the institution. Then faculty of all schools/programs are asked to help with facilitating the problem-based learning activities and/or cases with standardized patients." -P16		

- "Faculty from across programs help to organize, facilitate, and provide student feedback, guidance and oversight to the varied programs and events offered." -P28
- "These faculty tend to really want to create meaningful engagements with identified goals and cases. I find that these are the partners that I lean on to start the IPE activities and then we identify other peripheral participant groups depending on the scenario." –P33
- "It is expected that all faculty participate regularly in IPE events that their students are participating in." –P54
- "Faculty from selected programs volunteer to participate in the IPE course as an instructor as well as volunteer to create content for ICC (Interprofessional Case Conference)." –P57

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Phase 2 - Qualitative and Quantitative Survey Results

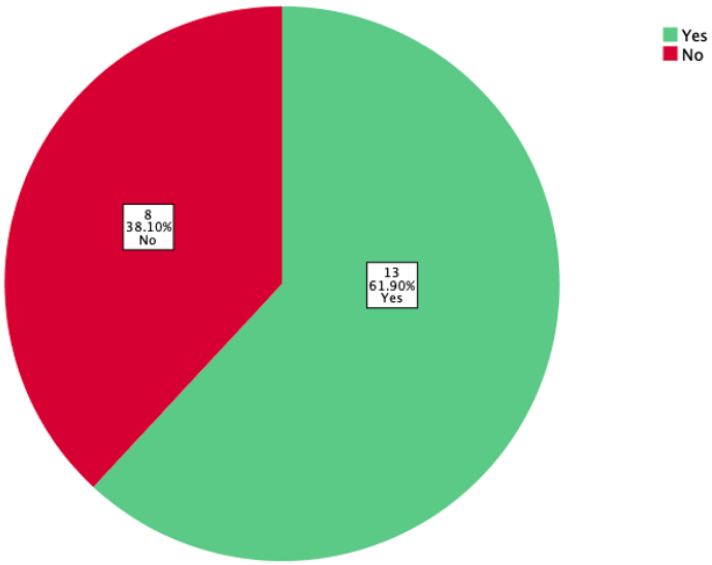
Once participants completed phase 1 of the survey, participants were provided the option to continue their participation, and answer eight open-ended survey questions to further understand their perceptions of IPE. If the participant chose not to proceed, Qualtrics then submitted their responses, and exited the survey. If they chose to participate, they continued onto the second phase of the survey. Phase two consisted of qualitative survey questions which sought to capture how AT educators are using their knowledge to infuse IPE. Twenty-one participants completed phase 2 of the qualitative survey. According to Creswell and Clark (2018), using fewer than 20 participants during qualitative study research will result in more focused data. Although we did have 21 participants, we did include all completed responses provided for phase 2, for which at this time we also saw a repeat of themes. We kept our survey open for two more weeks, as we did not receive any further responses after having our survey open for 3 months. Our qualitative data from these questions allowed us to further explore and identify new themes and confirm concurrent trends also seen in other healthcare professions.

Central Research Question 3: What theoretical framework(s) are AT educators using to guide IPE into AT curriculum? Thirteen (61.90%) participants did agree that their IPE strategies were rooted in theory, while 8 (38.10%) indicated their strategies were not rooted in

theory (Figure 25). Participants that used theory also selected from a pre-determined list (Hean et al., 2018), presented in no specific rank order, the best fit theoretical category the participant's program used to infuse IPE (Figure 26). Each theoretical category listed was provided with a brief description (Figure 27). The top three theories selected by 5 (38.46%) participants were theoretical category #5 the "process" at a group level, 3 (23.08%) participants selected #7 "process" at the group level, and 2 (15.38%) participants selected #9 "outcome" at an individual level.

Figure 25

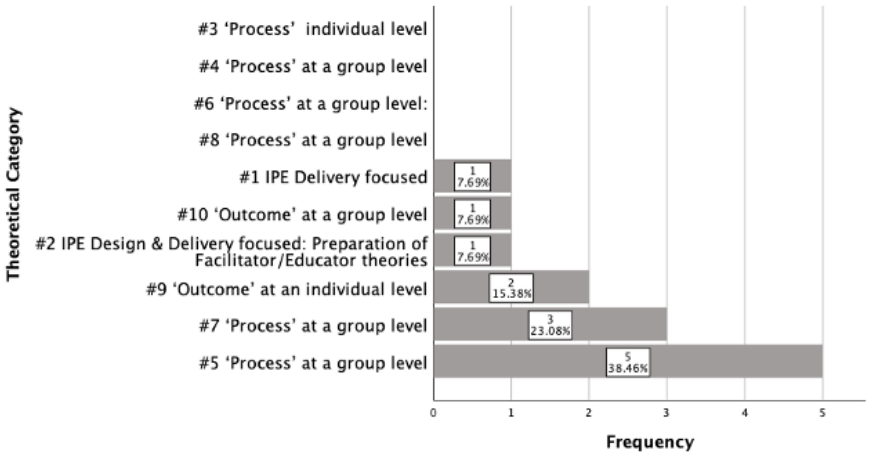
Participant's IPE Strategies Rooted in Theory



Note. This figure demonstrates if a participant's IPE strategies used are rooted in theory. The pie chart shows the count and percentage for each category.

Figure 26

Participant's Selection for Best Fit Theoretical Category to Infuse IPE



Note. This figure demonstrates the participants best fit theoretical category used to infuse IPE from a predetermined list. The total accounts for 12 responses. One participant did not select a theory. *Specific note.* Use the legend in Figure 27 to determine the specific theories in these categories. Refer to the description index to understand the theories in each category.

Figure 27

Theoretical Category Selection for Infusing IPE into AT curriculum

#1 IPE Delivery focused: **Planning, management & governance of IPE programs theories**

#2 IPE Design & Delivery focused: **Preparation of Facilitator/Educator theories**

#3 Experience of IPE focused on the 'Process' (learning experience) at an individual level: **Cognitive constructivist approaches**

#4 Experience of IPE focused on the 'Process' at a group level: **Social constructivist approaches**

#5 Experience of IPE focused on the 'Process' at a group level: **Intergroup processes**

#6 Experience of IPE focused on the 'Process' at a group level: **Power and subordination**

#7 Experience of IPE focused on the 'Process' at a group level: **Communication and dialogue**

#8 Experience of IPE focused on the 'Process' at a group level: **Systems level framing of curriculum**

#9 Experience of IPE focused on the 'Outcome' at an individual level: **Learning outcomes**

#10 Experience of IPE focused on the 'Outcome' at a group level: **Group level outcomes**

Note. This figure demonstrates the predetermined list of theories (Hean et al., 2018) provided to the participants to choose from. Each possible category included a different focus on IPE and on an individual or group level.

The most selected predetermined theory was theoretical category #5 where the experience of IPE focused on the "process" at a group level, specifically the intergroup processes. The general approach of this theoretical category was on learning that emphasizes social interactions between different groups; collaborative learning in a hybrid space; group work on complex issues using rapid modifications of relationships between participants; learning environments that promotes safety; mutual respect; exploration; trust and equal status (Hean et al., 2018). Sample theories include contact conditions for attitudinal change (contact hypothesis); social interdependence; professional socialization; Knot working; hybridity and third spaces; intergroup differentiation; professional and team identity (Hean et al., 2018).

The next theoretical category #7 where the experience of IPE focused on the "process" at a group level, specifically using communication and dialogue. The general approach of this theoretical category used evaluations that focused on the nature and quality of interaction between participants; analysis of communication between learners using different analytical techniques (Hean et al., 2018). Sample theories include critical discourse; community of inquiry, and coordinated management meaning (Hean et al., 2018). The last commonly ranked theoretical category #9 included experiences of IPE focused on the 'outcome' at an individual level, specifically learning outcomes. The general approach of this theoretical category used a structured curriculum to foster cultural competence and diversity; division of labor to highlight and encourage interdependence among learners/healthcare team; support a system of cultural-behavioral concepts; looking beyond single setting consider CP at the individual; organizational and community levels; support engagement in interprofessional decision-making and reasoning; reflection and guidance on uni-professional and interprofessional priorities and actions (Hean et al., 2018). Sample theories include cultural theory; caring literacy; situational awareness;

expanded consciousness; self-efficacy (health belief model; socio-cognitive theory); knowledge of goals; ethics; methods; theories of own and other professions (Forslund model); intergroup attitudes (contact hypothesis) (Hean et al., 2018). Participants explained their selection from IPE theoretical category list in Table 13. Responses were placed into codes, categories, and themes.

Table 14

Open-Ended Explanations for Participants Chosen IPE Theoretical Category

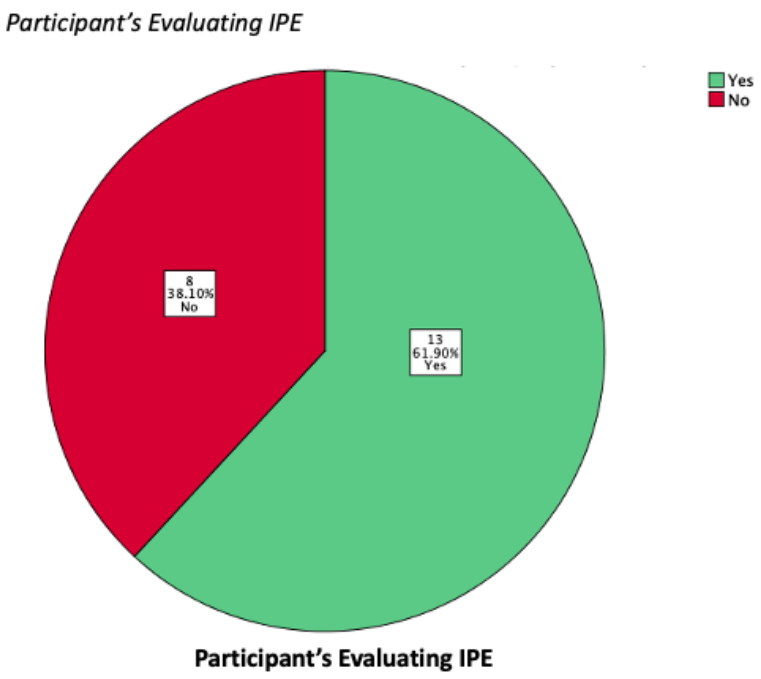
Codes	Categories	Themes
• Opportunities • Discuss • Approach • Few experiences • Hope to expand • Build upon • No specific theoretical framework • Several different theories • Conversation • Individual-group-community outcomes • Follow 4 IPEC domains • Designed • Learn how to communicate • Process • Learning collaboration • Blended approach • Outcome driven IPE • Encourage positive intergroup relationships • Expanding understanding • Educating others about AT • Unaware of IPE theoretical strategies • Create and deliver • Various learning experiences • Promote learning and working collaboratively • Assessment	• Follows a structured approach • Follow a blend of approaches • Not aware of theoretical support for IPE • Intentional design • Various modes of assessment to support learning • Advocacy and education about ATs • Promoting tenants of IPEC & CP	• Some programs **follow a singular, or blended** structured theoretical approach to IPE. • Some programs **have not identified**, or **faculty are not aware** of supportive theoretical approaches to their IPE programming. • **Regardless** of an identified, or not identified theoretical approach(es), IPE **programming appear purposeful** in its design, and process.
In-Vivo Codes		
• "No specific theoretical framework but we follow several different theories from the list..." –P6 (no selected theory) • "I am not aware of the theoretical IPE strategies, so I'm not sure if these events/strategies are rooted in theory." -P35 (no selected theory) • "The entire institution works on the process at a group level through collaboration and communication." –P16 (Theory #7) • "We tend to use a blended approach, but the outcome focused IPE drives much of our incorporation of IPE. Our program leans on this method as one to allow students to display their level of skill mastery in various areas of our program." –P23 (Theory #9) • "I think a focus is to encourage positive intergroup conversation and dialogue, hopefully promoting mutual respect and trust among the students that carries over into clinical practice." –P28 (Theory #5) • "IPEC Competencies and Framework used to create and deliver didactic coursework encompassing various learning experiences…" –P57 (Theory #2)		

• "In my current position, IPE has been as much a factor of my students learning as it is for expanding the understanding of what/who our profession is/does with those they interact with. Therefore, it has been beneficial at a group setting for our students to engage and debrief with these other professions and for them to address what they do/do not know, and our students see the large impact they can have on those working with us…" -P31 (Theory #7)

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Research Question 4: Are AT educators evaluating IPE strategies? Thirteen (61.90%) participants are evaluating IPE, while 8 (31.10%) were not evaluating IPE (Figure 27). Participants were allowed to explain their selections as depicted in Table 14. Responses were placed into codes, categories, and themes.

Figure 28



Note. This figure demonstrates if a participant is evaluating IPE. The pie chart shows the count and percentage for each category.

Table 15

Open-Ended Explanations for "Participant's Evaluating IPE"

Codes	Categories	Themes
• student evaluation • evaluate each session • (student) speaker evaluations • constantly evaluating • constantly closing the loop on program/curriculum evaluation • do not complete full evaluation • discuss as faculty • evaluation falls on another individual • students' complete inventory • evaluation is rudimentary • evaluation focused on overarching themes/goals • several surveys • pre/post • personal reflections • individual/group debrief • advisory board review • improve and strengthen	• students and/or faculty complete evaluations • evaluation is planned • pre/post evaluations • formal evaluations use validated and established surveys/inventories • debriefing, and/or reflections are used as evaluations • evaluation may be linked to program goals • individual/group feedback/evaluation • review and assessment of evaluations • no formal evaluation • rudimentary evaluation process	• Students and/or faculty **complete evaluations** • Evaluations are planned and may occur **pre and/or post** IPE. • **Some** forms of evaluations use **established** surveys or inventories. • **Some** forms of evaluations use **debriefing** and/or **self-reflection**. • A **committee/faculty may review** evaluations and **determine areas of improvement and to strengthen** for IPE programming. • Evaluation **may be linked to curricular goals** • Some programs have **no formal evaluation** established. • Some program evaluations are **rudimentary** and are working towards establishing an assessment plan.
In-Vivo Codes		
• "Not personally, but as an IPE Steering Committee we are constantly closing the loop and evaluating our programming/curriculum" -P16 • "At this point in time, evaluation of our IPE programming is relatively rudimentary and focused on overarching themes/goals within our program's assessment plan." -P23 • "We have used several different surveys over the years. Some pre and post and some just for information. We also ask for personal reflections and both individual and group debrief." –P27 • *"Students are surveyed after each event. the advisory board reviews the responses and student feedback and looks to improve and strengthen the programs offered. The goal is to offer quality programs that are sustainable and provide meaningful student learning experiences." –P28* • "While we are asked as educators to provide feedback and input on how the course was run, we are not formally evaluating the IPC course or larger program."-P57		

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Research Question 5: What are AT educators' perceived <u>barriers</u> associated with infusing IPE into their curriculum? Participants were provided the opportunity to provide their perceived barriers with infusing IPE into their curriculum as depicted in Table 15. Barriers were defined as any obstacles that impede the ability to meet an objective. Responses were placed into codes, categories, and themes.

Table 16

Open-Ended Explanations for "Perceived Barriers" when Infusing IPE into the Curriculum.

Codes	Categories	Themes
• IPE work not part of course workload • Only few professions available • Mismatched (program sequence) timing • Difficulty coordinating schedules/meetings' • Final semester • Most content • AT is new • Build connections • Inclusive topics • Hard finding time to have IPE funding • Schedules • Lack of cooperation • Large number of students • Difficulty incorporating • On/off campus • Limited access • Distance • Student workload • Schedule conflicts • Limited resources • Lack of space • Accommodating accreditation standards • Program timeframe • Student/faculty indifference • Difficult to incorporate into curriculum • Costs associated • Limited community resources to collaborate • Practice of IPE emergency 'potentially disturbing' to others • Lack of understanding • Logistics • Academic silos • Different interpretations • Rifts between professions • Not interested • Difficult buy-in • Extra-curricular IPE	• IPE timing is difficult • Mismatched of IPE longitudinally • Professional practice act disagreements • Lack of/accessibility to funds and space • Indifference and/or disinterest in IPE and/or collaborating with certain professions • Large number of students to coordinate IPE • Planning logistics • Location of different programs makes it difficult • Creating new relationships • Re-arranging curriculum	• **Limited professions** that are **accessible to collaborate** • **Different/mismatched curriculum timelines** and **accreditation standards** make IPE **coordination difficult.** • Finding **topics** that are inclusive of all professions. • **Logistical planning:** lack of/accessibility to funds, space, time, faculty and (large) number of students. • **Lack of cooperation and agreement** between faculty disciplines. • **Lack of buy-in or in-difference** of faculty and students with IPE. • Added **workload** for both students and faculty. • **Difficult to integrate** into curriculum. • **IPE is not recognized** in faculty workload. • **Lack of understanding** of one another's profession. • **Misunderstanding** of IPE and **lack of** (university) community **support outside** of the health professions. • **Competition for monopoly** of practice acts.
In-Vivo Codes		
• "Topics that are inclusive of all professions involved in the cases." –P7 • "Student workload, schedule conflicts and limited space and resources is a barrier. Each program has professional standards to satisfy individual accreditation bodies creating a challenging timeframe to offer and to accommodate program schedules and needs. A small but underlying level of faculty and student indifference." –P28 • "Lack of understanding of other professions, reaching out to professionals in other professions to participate in our curriculum, lack of theoretical understanding of IPE strategies." -P35		

• "Different interpretations of what IPE should look like. An IPE that used to occur no longer does b/c faculty in the OT program do not agree with recent changes to the AT state practice act." –P50 • "Getting professionals and then students on board to add IPE opportunities that are often extra-curricular." –P57 • 1) Mismatch of timing between programs- the IPE program during the first fall is a great introduction but including IPE longitudinally is more challenging (but we're starting to have success after several years of continued effort). Once the large IPE course is over, individual programs conduct smaller scale IPE sessions but coordinating schedules so that students aren't too far ahead or behind the other groups in a particular content area is difficult. We have planned to do more in the final semester (and with other programs' students in their final semester) as culminating activities because by then, most students have had all the content and this is less of an issue 2) AT is new to the IPE course so it's taking time to build connections and relationships but it's working." –P6

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Research Question 6: What are AT educators' perceived <u>pressures</u> associated with infusing IPE into their curriculum? Participants were provided the opportunity to provide their perceived pressures with infusing IPE into their curriculum as depicted in Table 16. Pressures were defined as the weight of social or economic imposition (Merriam Webster, 2020a). Responses were placed into codes, categories, and themes.

Table 17

Open-Ended Explanations for "Pressures" when Infusing IPE into the Curriculum.

Codes	Categories	Themes
• Everyone doing so little pressure • Appropriate exposure • Meeting accreditation standards • Ambiguity • Limitations • Imposing • Perceived opportunity • No pressure • Meeting expectations • Disagreement • Overall pressure • No good plan for implementation	• Little to no pressure to implement • Pressure to implement • Finding the right balance of IPE programming • Meeting expectations (students, accrediting body, university) • lack of resources/limitations/support to meet IPE • Imposing on others' resources • Ambiguity of standards • Lack of support and structure for implementation	• Some faculty report **little to no pressure** to implement IPE. Some **reasons are** it being a **global expectation** among other programs and/or there is a structure in place for IPE. • Some faculty **do report pressure** to implement. Some **reasons are expectations from** accrediting body, students, and/or the university. • **Lack of/clear infrastructure** to implement IPE can make it difficult to implement IPE. • **Determining the right amount of exposure** for students. • **Not imposing** on other programs resources. • **Ambiguity of accreditation standards** involving IPE. • **Different perceptions/opinions** of what IPE looks like.

In-Vivo Codes
• "Everyone is supposed to be doing this so there is a little pressure but not a major issue." –P6 • "Lack of description in CAATE standards (are we meeting the standard)?" –P10 • "The potential for being an imposition on another program's resources (e.g. time and money)." –P23 • "Many accreditation agencies requiring IPE in healthcare programs. We see it as an opportunity to involve more programs." –P27 • "I do not perceive any pressures. The AT program infuses concepts if IPE throughout coursework in the curriculum and stresses the importance of AT students being part of the conversation and encourages all AT students to not only attend but participate and actively engaged all IPE events offered." –P28 • "It's a strategic plan so we have to do it and administration want our students to participate in events that are categorized as IPE even though the AT faculty may not agree that it is truly IPE." –P50 • "Just the overall pressure to do it and not having a good formula to follow to implement it."-P56 • At this point the students almost expect something during their orientation week and now I need to "live up" to something bigger and better each year. This past simulation I created realistic vitals over the length of time the simulation was occurring, and then replicated the impacts of when intervention decisions were made, which required me to create 15 or so sets of vitals for one patient. It was highly demanding and stressful. I also would really love to stand back and watch the experience; take in what the students are actually doing and then be able to incorporate that into additional learning experience I provide in the classroom, but I don't have the support (manpower) to hand off the simulation duties to someone else. -P31

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Research Question 7: What are AT educators' perceived <u>facilitators</u> associated with infusing IPE into their curriculum? Participants were provided the opportunity to provide their perceived pressures with infusing IPE into their curriculum as depicted in Table 17. Facilitators were defined as a system/process that promote IPE and help make IPE implementation easier. Responses were placed into codes, categories, and themes.

Table 18

Open-Ended Explanations for "Facilitators" when Infusing IPE into the Curriculum.

Codes	Categories	Themes
• IPE faculty spread out • Accreditation standards • Good connections • No shortage of collaboration • School of IPE • Heavy-lifting • Faculty reps • Facilitator • Committee • College valuable resource • Supporter • Faculty/staff • Interest • Energetic	• Resources available • Support is spread out • Desire, willingness and/or interest to serve/collaborate • Desire/interest for IPE • Leadership positions and committees support IPE • IPE is viewed as valuable and/or important • Accreditation standards facilitate • IPE is mandated • IPE workload is recognized	• **Resources in place** help to facilitate IPE such as: vast programs to collaborate with, specific IPE schools/**committees/leadership positions** to provide support, **volunteers**/faculty representatives willing to lead/facilitate IPE. • **Willingness** to collaborate and teamwork among faculty and professions is essential to continue to support IPE.

• Work together • Producing quality experiences • IPE viewed as important • Willingness to collaborate • Director • Provides guidance and resources member of advisory board • Dedicated faculty • Willing to facilitate • Promote IPE • Eager • Interaction • Supportive coworkers • Use experiences to show worth • School allows easy access to other programs • Faculty want to occur • Being open • Offer support • Values IPE • Mandatory • leaders are volunteers • Valuable • Receive service recognition		• A **positive (approach)** attitude, optimism, eagerness, energy, enthusiasm, an interest and/or a desire to be involved in IPE, help to maintain and progress IPE. • **Colleague support.** • **Mandatory IPE** allows for **resources and support to be put in place** along with recognizing IPE as part of faculty workload.
In-Vivo Codes		
• "Programs that do work together are very energetic and interested in producing quality experiences." –P18 • "The willingness of other programs, departments, and faculty to collaborate on IPE. These experiences are often exciting and a great way to assess our students (and their experiences) in a way that's fun for them and us!" –P22 • "We have an excellent director of IPE studies who provides guidance and resources to help faculty facilitate IPE experiences. I am fortunate to be a member of the advisory board that includes dedicated faculty across program that are more than willing to help facilitate and enthusiastically promote IPE within our University." -P27 • "The University and College of Health Professions values IPE and as such has made student participation in and completion of the IPE course mandatory. Individuals that lead IPE courses are volunteers, such that these experiences are valuable to them. They receive university level service for participation." –P56 • "Both program faculty are eager to collaborate to allow our students to interact with one another." –P28		

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Research Question 8: What are AT educators' perceived <u>benefits</u> associated with infusing IPE into their curriculum? Participants were provided the opportunity to provide their perceived pressures with infusing IPE into their curriculum as depicted in Table 18. Benefits were defined as something that produces a good or is helpful; something that enhances and promotes well-being (Merriam Webster, 2020b). Responses were placed into codes, categories, and themes.

Table 19

Open-Ended Explanations for "Benefits" when Infusing IPE into the Curriculum.

Codes	Categories	Themes
• Understand role in team • Students understand other's role • Education about AT • Advocation for AT • Connection with other first years • Early introduction • Professional growth • Relationships • Experience communicating with other HCPs • Model healthcare • Exposure • Benefits of collaboration • Cultural competence • Work with different socioeconomic levels • Patient care • Students enjoy IPE • AT demonstrate their skills and knowledge • Understand roles and responsibilities • Raise awareness to general public about HCPs role • Experience confidence • Understand value of teamwork • Practice teamwork • Well-received • Increased positive reflection of AT • Growth in employment opportunities for AT • Integrate skills	• All around advocacy and benefits for AT • Exposure to and learning about other hcps • Exposure and practice with teamwork, complexities and strategies • Experience benefits students • Build relationships/connections	• **Advocacy and awareness of the profession of AT**. This benefits AT by exposing the positive attributes of AT and possibly creating more job opportunities. • **Students learn about their role** in the healthcare team including exposure to, practice of and the value of teamwork. • **Students are exposed** to the complexities, strategies, and communication needed for teamwork. • Students gain **early exposure** to IPE. • Student's report **feeling more "confident"** after IPE exposure. • Students **enjoy** IPE. • **Both** students and faculty have the opportunity to **experience professional growth, build relationships and connections**. • Students **apply their skillset** in a 'real world' scenario. • IPE **raises awareness to the general public** about HCPs roles. • IPE provides opportunity to "**assist" in meeting IPE accreditation requirement** by using shared resources and appropriate content experts. • Students **learn how to advocate** for their role and educate others about their profession.

In-Vivo Codes

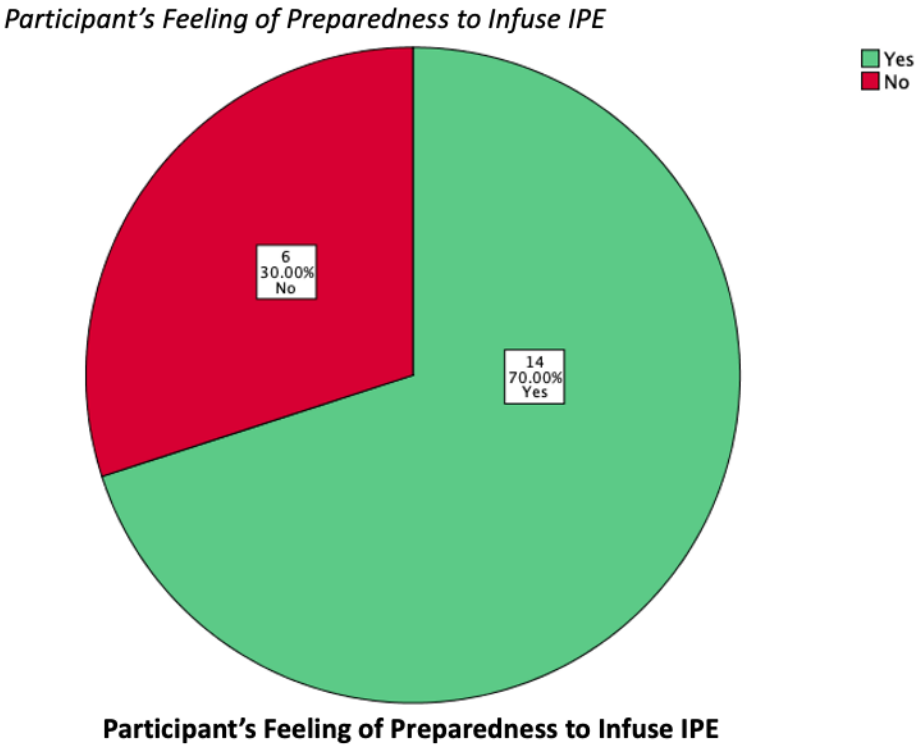
- "Students leave the program with experience communicating with other HCPs." –p10
- "This is how healthcare works, we need to model it for our students as well as expose them to the benefits of collaboration in healthcare.
  -P16
- "Our AT students are able to demonstrate their skills and knowledge to other HCPs and HCP students. This helps us display our professional skill set which is often misrepresented and misunderstood by other professions." –P23
- "Opens the eyes of faculty and students to how to work together with other professions as well as understanding the roles and responsibilities of each profession. Ultimately it will help the general public that these individuals treat knowing the resources they have to refer to, etc."-P27
- "While in the moment students describe the experience as stressful; they often later associate it with confidence. Sending students out into the workforce with any level of confidence is the difference, in my opinion between a competent novice and experienced professional." –P15
- "Patient centered care will be the outcome, increased positive reflection on the AT profession, growth in employment environment for AT's." –P19
- "Benefits are many and broad- connection with other first year health science students, early introduction of teamwork and it's importance for providing high quality care, early introduction to the complexities of teamwork and need for specific strategies to manage this complexities (communication, situational leadership, humility), the IPE course

provides content about other professions that we could struggle to include in the MAT program (because we don't have the time or expertise), early opportunities to work on a team and begin to hone those skills." –P6

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Research Question 9: Do AT educators' feel prepared to infuse IPE? Fourteen (70.00%) of AT educators felt prepared to infuse IPE while 6 (30.00%) did not feel prepared (Figure 28). Participants were allowed to explain their selections as depicted in Table 19. Responses were placed into codes, categories, and themes.

Figure 29



Note. This figure demonstrates participant's feeling of preparedness to infuse IPE. The pie chart shows the count and percentage for each category.

Table 20

Open-Ended Explanations for "Feeling of Preparedness" when Infusing IPE in Curriculum.

Codes	Categories	Themes
• Receive on-going training • Taken IPE courses • Dissertation IPE • Already doing IPE with success • Have been doing large and small events • Limited training • Rely on others • Difficult as small program • More effort for AT at bigger institution • Building • Improving • Have tools • Need buy-in • Self-preparation • IPE committee • Inspired • Interested • Desire • Intentional experience • Still learning • Not top priority • Can't do alone	• Ongoing training • Self-preparation • Limited training creates reliance • Smaller programs and/or being at bigger institution involves more effort in IPE • Colleague support is essential • Buy-in and engagement is needed • Self-initiative and general interest	• Some faculty **receive on-going training** from other IPE faculty to help with preparedness. • Some faculty have **received formal training in IPE** (academic coursework, workshops, conferences, research) to help with preparedness. • Some faculty preparation involves **IPE committee participation.** • To feel prepared faculty must have a **desire to be a part of willingness and interest** in IPE. • **Lack of formal training,** lack of **support** from the community and/or colleagues can **hinder preparedness.** • Faculty within a **smaller program** and or that are a part of **a larger institution** with other larger programs can **require more effort and work for IPE.** • Colleagues and university support and **buy-in are essential.** • Faculty who has **experience implementing IPE for some time, feel confident and prepared** for IPE

In-Vivo Codes

- "I have limited training and rely on others who are more expert." –P9
- "It's has been difficult for a small program to get a "seat" at bigger colleges' IPE tables." –P10
- "It should be second nature, but at a bigger institution, it takes intentionality and hard work." –P16
- "I have the tools to do it, but need buy-in from other faculty." –P20
- "Readings and conference participation as well as forming a committee that has developed a full IPE programming across the university. We have spent countless hours preparing, designing and and carrying out programming." -P27
- "I have colleagues who are great IPE role models, as a result I am comfortable and confident infusing IPE activities and promoting discussion with all students." –P28
- "Because it is an accreditation Standard, I have been intentional about gaining contemporary expertise in this area. I also volunteered to be the AT representative on two university and school-based IPE workgroups. Thus, I am probably farther along in my preparedness than other faculty in my program." –P35
- "I am knowledgeable on topic, but involvement from others is needed. Getting buy-in from others has been difficult. Can't go it alone." –P56

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Research Question 10: How has IPE programming changed because of the 2019 Coronavirus Disease (COVID-19)? Participants were provided the opportunity to provide comments on how their programming has changes because of COVID-19 as depicted in Table 20. Responses were placed into codes, categories, and themes. Once the participant completed questions from phase two, they submitted their survey to conclude their participation.

Table 21

Open-Ended Explanations for "Changes in IPE Programming from COVID-19".

Codes	Categories	Themes
• Experiences are online • Hosting • Remote better in some ways • Hybrid • Transfer all events • Ceased • All virtual • Limited • Body language • Few clinical opportunities • Limited quantity of opportunities • Could not participate • Pre-recorded • Technical issues • Remote platform • Unable to complete IP SP • Continued 1:1 hospital placement • Not able to hold large in-person events On-hold • Restrictions are lifted • Delivery format changed • Quieted • Delayed • Moved to online synchronous format	• IPE moved to online platform • IPE delayed • IPE cancelled • Planning/discussion has ceased • Hard to read participants. • Reduced/fewer clinical opportunities. • Large scale events cancelled. • Pre-recorded IPE • Technical Issues • Synchronous online activities • Some improvement in online remote format.	• Overall, IPE has **moved to an online** platform. • **Online** IPE activities are reportedly **synchronous.** • **Some view online format as an improvement** to IPE programming. • There are **reduced or cancelled in-person events and clinical opportunities.** • **Logistically, Covid restrictions** have **reduced** the number of opportunities to **engage** with other programs. • Some **disadvantages to moving online** are limitations to read the room/body language and technical issues., or creating a disconnect - 'losing human touch' (Khalli, 2020) • Temporary ceasing of large in-person events. • **Online** platform has allowed for **larger attendance.** • COVID has **prompted discussions to change future programming or has ceased** further IPE planning discussions.
In-Vivo Codes		
• "Moved to a remote format but in some ways it was better, we've discussed a hybrid format going forward but no decisions have been made." –P6 • *"Everything was done virtually. We are social beings and thus being able to read a room and the body language piece is limited on the virtual platform." –P16* • "Incoming orientation was pre-recorded and seen by students online. In-person IPE core events are currently offered remotely using a synchronous platform. The advantage is more students are available to attend and the disadvantage is the technical issues that occasionally arise using a remote platform." –P28		

Note. Qualitative responses were encoded for codes and categories and decoded for emerging themes. Participant direct quotes or "in-vivo" codes, were selected to support what was further found.

Chapter V. Discussion and Conclusions

The purpose of our exploratory study was three-fold. First our study, explored the perceptions of IPE. Our novel finding revealed, AT educators appear to have an overall agreeable, and positive perception associated with infusing IPE. Second, we identified the strategies AT educators infused within their programs. Common IPE strategies AT educators used, aligned with the strategies found in the white paper (Breitbach and Richardson, 2015) and within recent current literature (Manspeaker et. al, 2021). IPE appears to have an intentional progression from online to in-person, from large to small group format, from autonomous to team-based activities. Common IPE activities included intracurricular or extracurricular activities or a blend of both. Third, we identified the use of theoretical frameworks when AT educators infused IPE. Most AT educators reported using a theoretical framework although less than half are not aware or do not know of theoretical frameworks supporting IPE programming. Considering this, focus must be taken to ensure faculty are informed and understand the theoretical framework that support their IPE objectives.

Conceptual Framework Linkage and Related Previous Study Findings

Our sub-research questions focused on several themes that aligned with our framework. *Evaluation* appeared to occurring and various forms were used to assess IPE. Faculty review of evaluations support the K2A theory to strengthen and improve programming. Reported *barriers* are similar to current literature (logistical, limited resources, lack of support) (Kraemer et al., 2019; Hankemeier & Manspeaker, 2017, 2018; O'Brien et al., 2020) and continues to highlight the misunderstanding of the AT profession. Some AT programs may encounter barriers to IPE due to the smaller stature of the AT program. *Pressures* can stem from the accrediting body, university, and/or participating stakeholders, other literature supports this (O'Brien et al., 2020).

Different perspectives of IPE, a lack of clear infrastructure, support or role in IPE make it difficult to implement. Perceived *facilitators* such as accreditation requirements, as cited in other research (O'Brien et al., 2020), allowed IPE to be known and typically there are allotted resources for implementation. Also cited in other resources, such as infrastructure, resources, (O'Brien et al., 2020) and most importantly individual desire, and interest will help to facilitate IPE. Reported *benefits* are similar to current literature (improve patient care, awareness of professions, professional growth) (Kraemer et al., 2019; Hankemeier & Manspeaker, 2017, 2018; O'Brien et al., 2020). Faculty recognize vast student benefits in part due to early exposure and recognize the platform IPE provides to advocate and educate about the profession of AT. Faculty *preparation* supports the tenants of the K2A theory. Faculty monitor and sustain their knowledge to use and adapt to the context needed to implement IPE. Faculty require the infrastructure and resources to feel prepared. Faculty desire/interest and/or amount of experience also contribute to how confident one feels in their preparation.

The last sub-research question focused on how *COVID influenced* program changes. COVID disruption caused many educators to re-evaluate program delivery. While some chose to cease, pause, or move IPE online, others saw this as an opportunity to integrate other innovative delivery methods and improve programming. This is also similar to what's been reported in the literature (Jones et al., 2020). The move to online education has created a disconnect between participating stakeholders in an online platform and possibly the lack of knowledge or expertise from educators in online education which pose as a common challenge as also found in the literature (Khalil, 2020). Adequate support and training for instructors implementing online education must be provided. In addition, proper frameworks to support online education must be utilized. Khalil (2020) proposed "Meaningful Discourse - a framework when used in online

education is a process of articulation, reflection, and social negotiation in a collaborative structured manner where the learners share, discuss, and reflect on new different perspectives and ideas in an effort to co-construct new knowledge" is an example of a framework that could support an educator's transition to online education.

Our conceptual framework helped to guide our study and allowed us to first focus on the IPE learning environment by surveying the AT educators directly involved with IPE and inquire about their perceptions and strategies when infusing IPE. We ascertained our educators' perceptions using the "Perception Framework" (Pickens, 2005), as AT educators shared and referenced to their personal experiences and interpretations about IPE. Using the "Reciprocal Perception Action Theory" (Clark, 1998; Vernon et al., 2015) we gathered how AT educator's personal experiences and environments and vice versa, influenced their actions in IPE and how their actions and experiences further influenced their perceptions. Using the K2A theory (Graham, 2006), AT educators discussed how their knowledge is translated into practice by sharing how they organized, adapted, and implemented IPE. All three theories together, are considered to equally impact IPE.

Significance

Our research has identified common strategies used in IPE, how AT educators' use their knowledge to sustain IPE, and an overall positive perception with CP in IPE. From this information we are better able to understand what is occurring with IPE in AT. It is important to note, that we did not identify the most beneficial IPE strategy to promote IPE and ultimately CP, but this study did highlight the need for each AT educator to consider how one will use the information learned from this study and use it for their program benefit. AT educators will need determine what IPE looks like for them. What are their goals and intended outcomes for IPE?

Does this align with their mission and vision? AT educators must include IPE experiences that best fit their program and make it personal to their environment, students, faculty, their communities, and all stakeholders involved while considering other nuances such as funding, resources, accreditation standards, ectara.

In addition, using information from this study, can allow AT faculty to further explore new ideas to integrate into their program, areas that need further improvement and assistance with, including areas to further strengthen within IPE. Information from this study can help educators to understand how their environment, experiences, and perceptions can influence one's actions; explore and identify appropriate methods of IPE to infuse into their curriculum; explore theoretical frameworks to support their infusion of IPE; and better communicate their needs in IPE with their administrators. Ultimately, our study looked at many programs and highlighted the diverse interprofessional teams that interact with our AT stakeholders. AT educators involved must determine their IPE program goals, how are the AT faculty defining IPE, what IPE strategies would be most beneficial to their program, with what disciplines do they want to create IPE, and how will they deliver IPE.

Study Limitations

This study is not without limitations. Purposive sampling from the CAATE database, was cross-sectional, and included non-probability sampling and therefore cannot be generalizable. Not all states/program locations participated and are therefore, not representative of all AT IPE educators. AT faculty may have chosen not to participate for a variety of reasons. Participants may have had survey fatigue – in part possibly due to the length of the survey – and may have not completed the survey. The PINCOM-Q was short and could have included more questions to

avoid variance (which is how much a random variable is different from its expected values). PINCOM-Q questions could be potentially viewed as bias.

The convenience sample of the AT faculty with favorable views towards IPE may have been more inclined to participate, which could potentially lead to biased responses. We also cannot determine if it is possible that participants who chose to participate in the phase 2 of the QL survey, could have come from a common cohort. It is important to note, that all participants responses, regardless of which phase they participated in, were de-identified, anonymous submissions. Qualitative responses received from the phase 2 QL survey did report different experiences per respondent, while some common themes generated included a positive or neutral perception of IPE, with fewer reporting a disagreeable perception of IPE. We must consider the possibility that those participants could be potentially from the same environment or learning community and could possibly influence each other's perceptions and thus present with a similar perception that was portrayed with their written words. There is a potential we may not be capturing a diverse perception of the AT community and could only postulate this moving forward.

This survey was made available during from late 2020 to early 2021 academic period. We must consider a potential history threat during this time. COVID restrictions/easing of protocols may have influenced some of the participants responses. Programs were in an atypical academic delivery mode and hadn't established or adapted yet to changing protocols/restrictions. The current pandemic may have negatively influenced overall participant perceptions. Lastly, there was no room to further probe/expand upon qualitative responses. The move to an online environment made us even more aware of the importance of giving a voice to our AT educators

in a challenging time - both professionally and personally - and highlighted the demand placed on AT educators to continue to be innovative and effective in the way they deliver education.

Suggestions for Future Research

Several recommendations can be made to expand upon this area of research. First, an exploratory, qualitative approach to allow the opportunity to further probe and expand on the themes developed from the participant responses in this study. A focus can also be taken in clinical IPE experiences and possibly how preceptors facilitation skills may influence the IPE experience. Investigate how IPE has changed education practices (longitudinal study) due to COVID and how this has impacted its stakeholders. Further investigate the approaches, resources, and pedagogical strategies used for virtual IPE. Investigate theoretical frameworks that support virtual IPE delivery. Investigate interprofessional socialization in an online versus in-person environments. Explore assessment tools used to assess virtual IPE. Explore how IPE virtual learning environments impact approaches to patient care. Explore how to determine how we are best effectively training and or engaging students to become better interprofessional collaborative practitioners following program outcomes and evaluations. Lastly, how has the impact of being part of an interprofessional teaching team could impact the professional development of the AT educators.

Conclusion

In conclusion, our study demonstrated that interdependence is a vital part to ensuring the existence of IPE, but also that teamwork is essential when considering all factors needed to create meaningful IPE. Overall, it appears AT educators have a positive perception of collaborative practice in IPE and are infusing IPE strategies in-line with current literature. AT educators appear to also infuse theoretical frameworks to support IPE, although more learning

opportunities about theoretical frameworks that support IPE must be presented to educators. Resources and institutional support must be in place to help AT educators sustain and facilitate IPE. Continuing education and professional development opportunities in IPE must increase to continue to help encourage and keep AT educators up to date on current IPE practices. Lastly, information taken from this study can help lay the groundwork for AT educators to better communicate their needs in IPE with their administrators and to further support their infusion of IPE.

References

Abu-Rish, E., Kim S., Lapio, C., Varpio, L., Malik E., White, A. A., Craddick, K., Blondon, K., Robbins, L., Nagasawa, P., Thigpen, A., Chen, L-L., Joanne, Z., & Zierler, B. (2012). Current trends in interprofessional education of health sciences students: A literature review. *Journal of Interprofessional Care*, *26*, 444-451.

Assael, H. (1995). *Consumer behavior & marketing action* (5th ed.). PWS-Kent Publishing Company.

Breitbach, A. P., & Brown, S. D. (2011). The institutional and professional benefits of housing athletic training education programs in schools of health professions. *Journal of Allied Health*, *40*(1), 39-42.

Brietbach, A. P, & Cuppett, M. (2012, October). *Inclusion of athletic training faculty and students can enhance interprofessional education programs.* Paper presented at the Association of Schools of Allied Health Professions Annual Meeting, Orlando, FL.

Breitbach, A. P., Eliot, K., Cuppett, M., Wilson, M., & Chushak, M. (2018). The progress and promise of interprofessional education in athletic training programs. *Athletic Training Education Journal*, *13*(1), 57-66.

Breitbach, A. P., Reeves, S., & Fletcher, S. N. (2017). Health care as a team sport? – Studying athletics to improve interprofessional collaboration. *MDIP Journal Sports*, *5*(62), 1-12.

Breitbach, A. P., Richardson, R. R., Berry, D. C., Eberman, L. E., Emineth, K. K., Esparaza, S. D., Goeckel, C., Harling, H. W., Harter, H., Jarriel, M., Kahanov, L., Klossner, J., Odai, M. L., Pascale, A., Rizzo, C., Schellhase, K. C., Schocken, D. M., Synder, M., Swann, E., Thompson, A. J., Tivener, K. A., Tomchuk, D., Toy, B. J., Wilkinson, R. D., & Zimmerman, E. P. (2015). Interprofessional education and practice in

athletic training. *Athletic Training Education Journal*, *10*(2), 170-182.

Breitbach, A. P., Sargeant, D. M., Gettemeier, P. R., Ruebling, I., Carlson, J., Eliot, K., . . . Gockel-Blessing, E. A. (2013). From buy-in to integration: Melding an interprofessional initiative into academic programs in the health professions. *Journal of Allied Health*, *42*(3), e67-73.

Breitbach, A. P., & Brown, S. D. (2011). The institutional and professional benefits of housing athletic training education programs in schools of health professions. *Journal of Allied Health*, *40*(1), 39-42.

Bronstein, L. R. (2002). Index of interdisciplinary collaboration. *Social Work Research*, *26*(2), 113-126.

Charles-Liscombe, R. S., Bayliss, J., Hofmeyer, E., Glankler, D., Clephane, K., Byrant, T., Harshbarger, N., & Mallory, A. (2019). *Exploring local health disparities and the social determinants of health to develop IPE values and ethics core competencies.* Poster presented at the 2019 Athletic Training Educators' Conference, Dallas, TX.

Clark, A. (1997). *Being there: Putting brain, body, and world together again.* MIT Press.

Clark, A. (1998). Time and mind. *Journal of Philosophy*, 95, 354-376.

Commission on Accreditation of Athletic Training Education (CAATE). (2018, January 9). *Implementation and guide to the CAATE 2020 professional standards.* https://caate.net/professional-programs/

Commission on Accreditation of Athletic Training Education (CAATE). (2019, February). *CAATE update.* Symposium conducted at the meeting of the Athletic Training Educators' Conference in Grapevine, Tx.

Commission on Accreditation of Athletic Training Education (CAATE). (n. d. a) The

professional degree. Retrieved from https://caate.net/the-professional-degree/

Commission on Accreditation of Athletic Training Education (CAATE). (n. d. b). Updated definition of preceptor. Retrieved from https://caate.net/updated-definition-preceptor/

Cohen, J. (1992). Quantitative methods in psychology - A power primer. *Psychological Bulletin, 112*(1), 155-159.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications, Inc.

Crockett, L. (2017). The knowledge to action framework. Lecture presented at the 2011 Advanced Participatory Research in Health Canada Conference, Canada

Cuff, P. A., & Forstag, H. E. (2019). *Strengthening the connection between health professions education & practice: Proceedings of a joint workshop.* Washington, DC.

DeLuca, D. (2018a). *Personal study notes for GMHS-7500: Stats1*. (Unpublished manuscript). Department of Interprofessional Health Sciences and Health Administration, Seton Hall University.

Deluca, D. (2018b). Chapter 8.1-8.4 review notes of key concepts. Unpublished work, School of Health and Medical Sciences, Seton Hall University, South Orange, New Jersey.

Elder, J., Viesselman, C., Ronnebaum, J., Bush, K., Fiala, M., & Bottenberg, M. (2019, February). *Interprofessional education collaborative: Creating IPE opportunities across institutions.* Poster presented at the 2019 Athletic Training Educators' Conference, Dallas, TX.

Eliot, K., Breitbach, A., Wilson, M., & Chushak, M. (2017). Institutional readiness for interprofessional education among nutrition and dietetics and athletic training education programs. *Journal of Allied Health*, *46*(2), 94-103.

Gaven, S. L., Armstrong, K. J., & Ocampo, K. W. Fostering interprofessional patient-centered care through standardized patient encounters. Poster presented at the 2019 Athletic Training Educators' Conference, Dallas, TX.

Goeckel, C. (2018). *An exploratory study on the perceptions of IPE towards interprofessional practice in athletic training.* Seton Hall University.

Graham I. D., Logan, J., Harrison, M. B., Straus, S. E., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in knowledge translation: Time for a map? *The Journal of Continuing Education in Health Professions, 26,* 13-14.

Health Professions Accreditors Collaborative (HPAC). (2019). *Guidance on Developing Quality Interprofessional Education for Health Professions.* Health Professions Accreditors Collaborative.

Hean, S., Green, C., Anderson, E., Morris, D., John, C., Pitt, R., & O'Halloran, C. (2018). The contribution of theory to the design, delivery, and evaluation of interprofessional curricula: BEME Guide No. 49. *Medical Teacher, 40*(6), 542-548.

Hughes, J. K., Allen, A., McLane, T., Stewart, J. L., Heboyan, J. L., & De Leo, G. (2019). Interprofessional education among occupational therapy programs: Faculty perceptions of challenges and opportunities. *The American Journal of Occupational Therapy, 73*(5), 1-6.

Interprofessional Education Collaborative (IPEC). (2011). *Core Competencies for Interprofessional Collaborative Practice.* Interprofessional Education Collaborative.

Interprofessional Education Collaborative (IPEC). (2016). *Core Competencies for Interprofessional Collaborative Practice: 2016 Update.* Washington, D.C.: Interprofessional Education Collaborative. Retrieved from https://hsc.unm.edu/ipe/resources/ipec-2016-core-competencies.pdf

Jones, T.A., Vidal, G., & Taylor, C. (2020). Interprofessional education during the COVID-19 pandemic: finding the good in a bad situation. *Journal of Interprofessional Care, 34*(5), 633-646.

Khalili, H. (2020). Online interprofessional education during and post the COVID-19 pandemic: a commentary. *Journal of Interprofessional Care, 34*(5), 687-690.

Kirby, J. L., Sweigart, L., Freeman P., Landis, K., Ellcessor G., Gray J., Pike,K., Osborne, K., Hawkins, W. M., Tschopp, M. K., Kandiah, J., & Walker, S.E. (2019). *Implementing interprofessional education experiences into a new college of health.* Poster presented at the 2019 Athletic Training Educators' Conference, Dallas, TX.

Kraemer, E., Keeley, K., Martin, M., & Breitbach, A. P. (2019). Athletic trainers' perceptions and experiences with interprofessional practice. *Health and Interprofessional Practice.* Retrieved from: https://www.researchgate.net/publication/334051531_Athletic_Trainers'_Perceptions_and_Experiences_with_Interprofessional_Practice

Lash, D. B., Barnett, M. J., Parekh, N., Shieh, A., Louie, M. C., & Tang, T. T-L. (2014). Perceived benefits and challenges of interprofessional education based on multidisciplinary faculty member survey. *American Journal of Pharmaceutical Education, 78*(10), 1-9.

Leitch, J. (2014). Exploring psychometric properties of the interdisciplinary education perception scale in health graduate students. *Journal of Interprofessional Care, 28*(1). 52-57

Mackay, S. (2004). The role perception questionnaire (RPQ): A tool for assessing undergraduate students' perceptions of the role of other professions.

McFayden, A. K., Maclaren, W. M., & Webster, V. S. (2007). The interdisciplinary education

perception scale (IEPS): An alternative remodeled sub-scale structure and its reliability.

Merriam-Webster. (2020a, June 1). Definition of "Pressure". https://www.merriam-webster.com/dictionary/pressure

Merriam-Webster. (2020b, June 1). Definition of "Benefit" https://www.merriam-webster.com/dictionary/benefit

Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult & Continuing Education* (5-12). Jossey-Bass Publishers.

National Athletic Trainers Association (NATA). (n.d.a.). Where ATs work. Retrieved from https://www.nata.org/about/athletic-training/job-settings

National Athletic Trainers Association (NATA). (n.d.b.). About Athletic Training. Retrieved from https://www.nata.org/about/athletic-training/education-overview

National Athletic Trainers Association (NATA). (2010). Athletic training services – An overview of skills and services performed by certified athletic trainers. Retrieved from https://www.nata.org/sites/default/files/guide_to_athletic_training_services.pdf

National Collaborative for Improving the Clinical Learning Environment (NCICLE). (2019). *Achieving the Optimal Interprofessional Clinical Learning Environment: Proceedings from an NCICLE Symposium.* Chicago, IL: Interprofessional Clinical Learning Environment Symposium.

O'Brien, C.W., Breitbach, A., & Dailey, L. (2020, July,13). *Connecting academic programs and clinical practice together to inform system improvement.* (Virtual conference session). 71st Virtual National Athletic Trainers Association Clinical Symposia and AT Expo. Online platform.

Odegard, A. (2006). Exploring perceptions of interprofessional collaboration in child mental

health care. *International Journal of Integrated Care*, *6*, 1-14.

Olenick, M., Flowers, M., Munecas, T., & Maltseva, T. (2019). Positive and negative factors that influence health care faculty intent to engage in interprofessional education (IPE). *Healthcare*, *7(*1), 29.

Olson, R., & Bialocerkowski, A. (2014). Interprofessional education in allied health: A systematic review. *Journal of Medical Education*, *48*(3), 236-246.

Peltonen, J., Leino-Kilpi, H., Heikkila, H., Rautava, P., Tuomela, K., Siekkinen, M., Sulosaari., & Stolt, M. (2019). Instruments measuring interprofessional collaboration in healthcare – a scoping review. *Journal of Interprofessional Care,*1-15.

Sage, B. W. (2019). *Implementing interprofessional education into athletic training curricula: The TEACH! curriculum.* Poster presented at the 2019 Athletic Training Educators' Conference, Dallas, TX.

Strype, J. Gundhus, H.O.I., Egge, M., & Odegard, A. (2014). Perceptions of interprofessional collaboration. *Professions & Professionalism*, *4*(3), 1-15.

Thrasher, A. B., & Anderson, L. (2019, February). *Using standardized patients for interprofessional education experiences with athletic training and social workers.* Poster presented at the 2019 Athletic Training Educators' Conference, Dallas, TX.

Vernon, D., Lowe, R., Thill, S., & Ziemke, T. (2015). Embodied cognition and circular causality: on the role constitutive autonomy in the reciprocal coupling of perception and action. *Frontiers in Psychology*, *6*, 1-9. doi: 10.3389/fpsyg.2015.01660

Walker, S. E., Cavallario, J. M., Welch Bacon, C. E., Bay, R. C., & Van Lunen, B. L. (2019, February). *Athletic training student application of interprofessional education during clinical education: A report from the athletic training clinical education network.* Poster

presented at the 2019 Athletic Training Educators' Conference, Dallas, TX.

World Health Organization. (2010). Framework for action on interprofessional education and collaborative practice. *Health Professions Networks Nursing & Midwifery Human Resources for Health.* Retrieved from http://www.who.int/hrh/resources/framework_action/en/

Zipp, G. P., Maher, C., LaFountaine, M., Rizzolo, D., Dayalu, V., Goeckel, C., Torcivia, E., & Phillips, J.H. (2014). Creating an IPE infusion plan: From foundation to implementation. *Association of Schools of Allied Health Professions*, *e25-e29.*

Appendix A

Institutional Review Board Approval

SETON HALL UNIVERSITY
1 8 5 6

October 30, 2020

Christina Nevers
Seton Hall University

Re: Study ID#2021-146

Dear Christina,

At its October 2020 meeting, the Research Ethics Committee of the Seton Hall University Institutional Review Board reviewed and approved your research proposal entitled "Athletic training (AT) educators' perceptions of interprofessional education (IPE) and educational strategies used to infuse IPE within athletic training programs (ATPs): a mixed methods approach" as submitted. This memo serves as official notice of the aforementioned study's approval. Enclosed for your records is the stamped letter of solicitation and consent form.

The Institutional Review Board approval of your research is valid for a one-year period from the date of this letter. During this time, any changes to the research protocol, informed consent form or study team must be reviewed and approved by the IRB prior to their implementation.

You will receive a communication from the Institutional Review Board at least 1 month prior to your expiration date requesting that you submit an Annual Progress Report to keep the study active, or a Final Review of Human Subjects Research form to close the study. In all future correspondence with the Institutional Review Board, please reference the ID# listed above.

Thank you for your cooperation.

Sincerely,

Mara C. Podvey, PhD, OTR
Associate Professor
Co-Chair, Institutional Review Board

Phyllis Hansell, EdD, RN, DNAP, FAAN
Professor
Co-Chair, Institutional Review Board

Office of the Institutional Review Board
Presidents Hall · 400 South Orange Avenue · South Orange, New Jersey 07079 · Tel: 973.275.4654 · Fax 973.275.2978 ·
www.shu.edu